REPORT RESUMES

ED 003 693 24

DISCRIMINATION BETWEEN DICHOTOMOUS PERSONALITY GROUPS AS DETERMINED BY HUMOR PREFERENCES.

BY- WENCK, STANLEY L.
SOUTH DAKOTA UNIV., VERMILLION

REPORT NUMBER CRP-S-123 PUB DATE 65
EDRS PRICE MF-$0.45 HC-$10.84 271P.

DESCRIPTORS- *PERSONALITY ASSESSMENT, PERSONALITY STUDIES, *GROUP BEHAVIOR, SOCIAL PSYCHOLOGY, *CONFORMITY, BEHAVIOR PATTERNS, HIGH SCHOOL STUDENTS, MALES, *CARTOONS, *STUDENT REACTION, VERMILLION, SOUTH DAKOTA, HUMOR PREFERENCE INVENTORY

THE HUMOR PREFERENCES OF DICHOTOMIZED GROUPS OF HIGH SCHOOL STUDENTS (SPECIFICALLY, CONFORMISTS AND NONCONFORMISTS) WERE STUDIED TO DETERMINE SIGNIFICANT DIFFERENCES AND TO ESTIMATE THE DEGREE OF RELIABILITY OF RESPONSES TO A HUMOR PREFERENCE INVENTORY. A TOTAL OF 111 MALE SOPHOMORE STUDENTS IN HIGH SCHOOL IDENTIFIED BY THEIR RESPECTIVE HOME ROOM TEACHERS SERVED AS THE STUDY POPULATION. PICTORIAL HUMOR RATHER THAN VERBAL STIMULI WAS SELECTED AS THE VEHICLE OF HUMOR. GROUPS OF CONFORMIST AND NONCONFORMIST SUBJECTS RESPONDED TO INVENTORY ITEMS BY INDICATING WHICH OF TWO CARTOONS IN EACH ITEM THEY BELIEVED TO BE MORE AMUSING. THE RESULTS OF THE STUDY SHOWED THAT REACTIONS TO PICTORIAL HUMOR CAN BE USED TO DISCRIMINATE BETWEEN DICHOTOMOUS GROUPS OF STUDENTS. INTELLIGENCE APPEARED TO HAVE AN EFFECT ON THE HUMOR PREFERENCES NOTED BY THE INVENTORY. IN VIEW OF THE DISCRIMINATIVE EFFECTIVENESS AND THE RELIABILITY OF THE RESPONSES TO THE INSTRUMENT, IT WAS BELIEVED THAT A FULLY-NORMED HUMOR PREFERENCE INVENTORY WITH MULTIPLE SCALES FOR SELECTED PERSONALITY TYPES WOULD BE FEASIBLE. (JH)

U. S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
Office of Education
This document has been reproduced exactly as received from the person or organization originating it. Points of view or opinions stated do not necessarily represent official Office of Education position or policy.

DISCRIMINATION BETWEEN DICHOTOMOUS PERSONALITY GROUPS AS DETERMINED BY HUMOR PREFERENCES

Cooperative Research Project No. S-123

Stanley L. Wenck

University of South Dakota
Vermillion, South Dakota

1965

The Research Reported Herein Was Supported by the Cooperative Research Program of the Office of Education, U. S. Department of Health, Education, and Welfare

ED003693

DISCRIMINATION BETWEEN DICHOTOMOUS PERSONALITY GROUPS AS DETERMINED BY HUMOR PREFERENCES

by
Stanley L. Wenck

B. A., Buena Vista College, 1956
M. Ed., University of South Dakota, 1960

A Dissertation Submitted in Partial Fulfillment of
the Requirements for the Degree of
Doctor of Education

The Department of Educational Psychology
and Guidance in the Graduate School
University of South Dakota
August, 1965

This Dissertation for the Ed.D. Degree
by Stanley L. Wenck
has been approved for the
Department of
Educational Psychology and Guidance
by

Joseph T Fisher
Dr. Joseph T. Fisher, Chairman

Fred J. Petersen
Dr. Fred J. Petersen

E Gordon Poling
Dr. E. Gordon Poling

Raleigh R. Steinbach
Dr. Raleigh Steinbach

Theodore Van Bruggen
Dr. Theodore Van Bruggen

ACKNOWLEDGEMENTS

The writer wishes to express his sincere appreciation to Dr. Joseph T. Fisher, Chairman of the Department of Educational Psychology and Guidance, for his skillful direction, encouragement, and moral support from the beginning through the final stages of this study.

Gratitude is also extended to the counseling personnel and high school students who participated in this investigation from Ida Grove, Sac City, and Storm Lake, Iowa and from Sioux Falls and Vermillion, South Dakota. A special word of thanks is due to Mr. Merlowe Anderson for his invaluable assistance in processing the data.

Above all, the writer is especially grateful to his wife, Mary Ellen, and daughter, Tamara, whose understanding, patience, and encouragement over the many months made this study possible.

TABLE OF CONTENTS

CHAPTER PAGE

I. INTRODUCTION. 1
- Need for the Study. 2
- Statement of the Problem. 4
- Procedures for the Study. 5
- Contractual Agreement with the U. S. Office of Health, Education, and Welfare 6
- Definition of Terms 7
- Delimitations of the Study. 8
- Expected Contributions. 9
- Organization of the Dissertation. 9

II. A REVIEW OF THE RELATED LITERATURE. 11
- A Theoretical Background. 13
- Emperical Investigations of Humor 26
- Summary of the Related Literature 61

III. PLAN OF PROCEDURE 63
- The Development of the Humor Preference Inventory 63
- The Population to which the H.P.I. was Administered. 83
- Statistical Procedures Employed in the Final Analyses of the Data. 91

CHAPTER PAGE
IV. ANALYSIS OF DATA. 99
A Comparison of the HPI Scores of the Conformists and Non-Conformists 99
A Comparison of the Age and Intelligence of Conformists and Non-Conformists 109
A Comparison of the HPI Scores of the Bipolar Groups with the Age and Intelligence Factors Held Constant 114
The Reliability of the Responses to the Humor Preference Inventory Item Groups. 120
V. SUMMARY AND CONCLUSIONS 127
Procedures of the Investigation 129
Summary of Findings 131
Conclusions 134
Implications for Further Research 136
BIBLIOGRAPHY. 138
APPENDIX A. Author's Letter of Permission to use Student Nomination Forms 148
APPENDIX B. Student Nomination Forms Adapted for use in this Study. 150
APPENDIX C. Chi-Square Values and Critical Ratios of Preliminary Test Items. 154

PAGE

APPENDIX D. The Humor Preference Inventory, the Answer Sheet Used and a List of the Sources of the Cartoons. 158
APPENDIX E. Statistical Data Relevant to Testing the Influence of Age Upon the Responses to the Ten Per Cent Level HPI Items 215
APPENDIX F. Statistical Data Relevant to Testing the Influence of Age Upon the Responses to the Five Per Cent Level HPI Items. . . . 218
APPENDIX G. Statistical Data Relevant to Testing the Influence of Age Upon the Responses to the One Per Cent Level HPI Items 221
APPENDIX H. Statistical Data Relevant to Testing the Influence of Age Upon the Responses to the Weighted HPI Items. 224
APPENDIX I. Statistical Data Relevant to Testing the Influence of Intelligence Upon the Responses to the Ten Per Cent Level HPI Items. 227
APPENDIX J. Statistical Data Relevant to Testing the Influence of Intelligence Upon the Responses to the Five Per Cent Level HPI Items. 230

PAGE

APPENDIX K. Statistical Data Relevant to Testing the Influence of Intelligence Upon the Responses to the One Per Cent Level HPI Items 233
APPENDIX L. Statistical Data Relevant to Testing the Influence of Intelligence Upon the Responses to the Weighted HPI Items . . . 236
APPENDIX M. Statistical Data Relevant to Testing the Influence of Both Age and Intelligence Upon the Responses to the Ten Per Cent Level HPI Items 239
APPENDIX N. Statistical Data Relevant to Testing the Influence of Both Age and Intelligence Upon the Responses to the Five Per Cent Level HPI Items 242
APPENDIX O. Statistical Data Relevant to Testing the Influence of Both Age and Intelligence Upon the Responses to the One Per Cent Level HPI Items 245
APPENDIX P. Statistical Data Relevant to Testing the Influence of Both Age and Intelligence Upon the Responses to the Weighted HPI Items 248

PAGE

APPENDIX Q. Split-Half Correlation Coefficients for the HPI Item Groups. 251

EDUCATIONAL CAREER. 253

LIST OF TABLES

TABLE PAGE

I. Critical Ratios Between MCI Scores for Bipolar Groups of Ninth and Tenth Grade Boys and Girls for Each Diagnostic Scale 66

II. Themes Preferred by Conformists and Non-Conformists from the Seventeen Most Highly Discriminating Items in Form A 77

III. Chi-Square Values of the Fifty Humor Preference Inventory Items Resulting from Pre-Testing Procedures 81

IV. Weights Assigned to the HPI Items Derived from the Differences in the Percentages of Choice by the Bipolar Groups 84

V. Actual and Expected Numbers of Students in the Two Criterion Groups from each of the Junior High School Districts. 90

VI. A Comparison of HPI Scores of the Total Population of Conformists and Non-Conformists 101

VII. A Comparison of HPI Scores of Conformists and Non-Conformists Having Satisfactory Validity Scores 104

TABLE PAGE

VIII. A Comparison of HPI Scores of First Choice Conformists with those of First Choice Non-Conformists 106

IX. A Comparison of HPI Scores of Second Choice Conformists with those of Second Choice Non-Conformists 108

X. The Comparison of Age and Intelligence Quotients of Conformists and Non-Conformists 110

XI. A Comparison of Age and Intelligence Quotients of First Choice Conformists and Non-Conformists 113

XII. A Comparison of Age and Intelligence Quotients of Second Choice Conformists and Non-Conformists 115

XIII. A Comparison of HPI Scores of Conformists and Non-Conformists with the Age Factor Held Constant 117

XIV. A Comparison of HPI Scores of Conformists and Non-Conformists with the Intelligence Factor Held Constant. 119

XV. A Comparison of HPI Scores of Conformists and Non-Conformists with the Age and Intelligence Factors Held Constant. 121

TABLE PAGE

XVI. Reliability Coefficients Corrected by the Spearman-Brown Formula for the HPI Item Groups Based on the Responses of Selected Subject Groups 123
XVII. Chi-Square Values Resulting from Pre-Testing Procedures on the 125 Form A Preliminary Test Items 155
XVIII. Critical Ratios Resulting from Pre-Testing Procedures on the 125 Form A Preliminary Test Items 156
XIX. Chi-Square Values Resulting from Pre-Testing Procedures on the 125 Form B Preliminary Test Items 157
XX. Sources of Cartoons Contained Within the Humor Preference Inventory 212
XXI. Sums and Means of the Criterion and Age Variable 216
XXII. Sums of Squares and Crossproduct 216
XXIII. Sums of Squares and Crossproduct in Deviation Form 217
XXIV. Test of Significance of the Influence of Age Upon the Responses to the Ten Per Cent Level HPI Items 217

TABLE PAGE

XXV. Sums and Means of the Criterion and Age Variable. 219
XXVI. Sums of Squares and Crossproduct. 219
XXVII. Sums of Squares and Crossproduct in Deviation Form. 220
XXVIII. Test of Significance of the Influence of Age Upon the Responses to the Five Per Cent Level HPI Items. 220
XXIX. Sums and Means of the Criterion and Age Variable. 222
XXX. Sums of Squares and Crossproduct. 222
XXXI. Sums of Squares and Crossproduct in Deviation Form. 223
XXXII. Test of Significance of the Influence of Age Upon the Responses to the One Per Cent Level HPI Items. 223
XXXIII. Sums and Means of the Criterion and Age Variable. 225
XXXIV. Sums of Squares and Crossproduct. 225
XXXV. Sums of Squares and Crossproduct in Deviation Form. 226
XXXVI. Test of Significance to the Influence of Age Upon the Responses to the Weighted HPI Items 226

TABLE PAGE

XXXVII. Sums and Means of the Criterion and Intelligence Variable 228

XXXVIII. Sums of Squares and Crossproduct. 228

XXXIX. Sums of Squares and Crossproduct in Deviation Form. 229

XL. Test of Significance of the Influence of Intelligence Upon the Responses to the Ten Per Cent Level HPI Items. 229

XLI. Sums and Means of the Criterion and Intelligence Variable 231

XLII. Sums of Squares and Crossproduct. 231

XLIII. Sums of Squares and Crossproduct in Deviation Form. 232

XLIV. Test of Significance of the Influence of Intelligence Upon the Responses to the Five Per Cent Level HPI Items 232

XLV. Sums and Means of the Criterion and Intelligence Variable 234

XLVI. Sums of Squares and Crossproduct. 234

XLVII. Sums of Squares and Crossproduct in Deviation Form. 235

XLVIII. Test of Significance of the Influence of Intelligence Upon the Responses to the One Per Cent Level HPI Items. 235

TABLE PAGE

XLIX. Sums and Means of the Criterion and Intelligence Variable 237

L. Sums of Squares and Crossproduct. 237

LI. Sums of Squares and Crossproduct in Deviation Form. 238

LII. Test of Significance of the Influence of Intelligence Upon the Responses to the Weighted HPI Items. 238

LIII. Sums and Means of the Criterion and Control Variables 240

LIV. Sums of Squares and Crossproduct. 240

LV. Sums of Squares and Crossproducts in Deviation Form. 241

LVI. Test of Significance of the Influence of Intelligence and Age Upon the Responses to the Ten Per Cent Level HPI Items 241

LVII. Sums and Means of the Criterion and Control Variables 243

LVIII. Sums of Squares and Crossproducts 243

LIX. Sums of Squares and Crossproducts in Deviation Form. 244

LX. Test of Significance of the Influence of Intelligence and Age Upon the Responses to the Five Per Cent Level HPI Items. . . . 244

TABLE PAGE

LXI. Sums and Means of the Criterion and Control Variables 246

LXII. Sums of Squares and Crossproducts 246

LXIII. Sums of Squares and Crossproducts in Deviation Form. 247

LXIV. Test of Significance of the Influence of Intelligence and Age Upon the Responses to the One Per Cent Level HPI Items 247

LXV. Sums and Means of the Criterion and Control Variables 249

LXVI. Sums of Squares and Crossproducts 249

LXVII. Sums of Squares and Crossproducts in Deviation Form. 250

LXVIII. Test of Significance of the Influence of Intelligence and Age Upon the Responses to the Weighted HPI Items 250

LXIX. Split-Half Coefficients of Correlation for the HPI Item Groups Based on the Responses of Selected Subject Groups. 252

CHAPTER I

INTRODUCTION

Numerous writers in the area of psychopathology have commented on the diagnostic value of reactions to humor stimuli. Men have long suspected that the conditions under which a man laughs reveal much concerning his character and temperament. "Men show their character," said Goethe, "in nothing more clearly than in what they think laughable."[1]

The casual observer is aware that humor is one of the more common forms of emotional expression. It is perhaps more common than the much researched emotions of fear, anger, hostility, and the like. In addition, humor is a type of personality manifestation which is sanctioned in our culture, thus permitting it to be rather openly and frequently expressed. Yet, despite its availability, there have been relatively few attempts to scientifically measure and diagnostically utilize this aspect of personality.

The results of the research which has been done in the area are in general agreement that subjects with various types of mental abnormalities possess disturbances of humor expression which are manifested in the form of misperception of the stimuli and/or inhibition of the response. Levine and

---

[1] Burton E. Stevenson (ed.), The Home Book of Quotations (New York: Dodd, Mead and Company, 1949), p. 236.

Redlich compared the responses of 183 psychiatric patients and mental defectives to cartoon humor with those of a normal control group. Their findings indicated that the psychiatric patients and the mental defectives showed less mirth, judged fewer cartoons funny, understood fewer, distorted more, and were disturbed by more of the stimuli.[1] The findings of Levine and Redlich's study and the results of other related research tended to support the position that individuals differ in the degree to which they employ humor as well as other emotions. Therefore, it seemed logical that these variances might result in a differentiation of measurable and quantifiable responses to humor stimuli.

I. NEED FOR THE STUDY

Although there has been a limited amount of research concerning the relationship of humor and personality traits, it has primarily been involved with adults possessing rather severe disturbances of personality. Practically none of this research has dealt with the effectiveness of humor stimuli in discriminating between dichotomized personality groups of high school subjects. Thus, there appeared to be a need to determine whether high school students of different personality types differ in their responses to humorous stimuli.

---

[1] Jacob Levine and Frederich C. Redlich, "Intellectual and Emotional Factors in the Appreciation of Humor," Journal of General Psychology, 62:25-35, January, 1960.

In spite of the positive qualities of humor manifestations, a careful search of source materials revealed no commercially available personality assessment device utilizing responses to humor. Raley and Ballman commented;

> With much more than chance consistency, one may find on any checklist of personality traits judged important by nearly any group of people, mention of a sense of humor. Yet, there is no personality inventory which attempts to measure in any degree, this uniquely human characteristic. In fact the most widely used personality inventories, namely, the Bernreuter and the MMPI place, instead, all the emphasis on abnormal tendencies. There is, therefore, a great need for a measuring instrument which can offer some insight into the nature of a trait that has a tremendous balancing influence upon the growth and development of the individual personality.[1]

Although mention of certain "tests" of humor appears in the literature, these have been developed primarily for experimental use only. In addition, none of these would be appropriate for the present investigation because of one or more of the following reasons: (1) insufficient length, (2) inadequate norming, (3) subjective judgment required for interpretation of results, and (4) inconclusive evidence of validity and reliability. Consequently, it was necessary to construct a suitable humor preference inventory with which to procure the data for this study.

Certain basic advantages of a standardized diagnostic technique involving humor are as follows: (1) its subject matter is quite non-threatening as opposed to many types of personality inventories commonly used, thus richer projection of inner feelings might be permitted, (2) quantification of results is readily possible, thereby greatly facilitating subsequent research, (3) the administration and scoring could be done by school personnel with a minimum of clinical training, and (4) reactions to humor may well tap different aspects of personality; consequently, a new dimension of understanding the individual might be made available.

---

[1] Agnes Lucile Raley and Christine Ballman, "Theoretical Implications for a Psychology of the Ludicrous," Journal of Social Psychology, 45:19, February, 1957.

Those who have been involved in the study of humor in relation to personality characteristics are almost unanimous in their opinion that further research is necessary. Levine and Rakusin have had this to say:

> One of the most striking and enduring traits of personality is the sense of humor. Yet, despite its effectiveness, sense of humor remains a neglected area of research. Though the essence of humor may be illusive as a personality trait, it is readily amenable for investigation.[1]

II. STATEMENT OF THE PROBLEM

The purpose of this investigation was to determine whether high school students, dichotomized as conformists and non-conformists, would differ significantly in their responses to humor stimuli. Accordingly, answers were sought to the following questions within the scope of the population studied:

---

[1] Jacob Levine and John Rakusin, "The Sense of Humor of College Students and Psychiatric Patients," Journal of General Psychology, 20:183, April, 1959.

1. Is there a significant difference between the humor preferences of high school students nominated as conformists and non-conformists?
2. What is the reliability of the responses to humorous stimuli by the high school students involved in this study to humor stimuli?
3. Would the development of a fully normed humor preference inventory with multiple scales for selected personality types be feasible?

III. PROCEDURES FOR THE STUDY

The major steps employed in this investigation will be briefly summarized in this section. A more detailed discussion will be found in Chapter III.

In order to acquire the necessary data for this study it was necessary to construct an appropriate instrument with which to elicit humor preferences from the conformist and non-conformist students. Consequently, a Humor Preference Inventory was developed. Each item of the inventory consisted of two cartoons. The items were so selected because of their effectiveness in discriminating between similarly dichotomized high school students in the earlier pre-testing procedures.

The conformist and non-conformist student criterion groups were identified by employing the same teacher nomination forms as were utilized by Berdie and Layton in the development of the Conformity Scale of the Minnesota Counseling Inventory.[1] On these nomination forms sophomore home room teachers were asked to list which boys best fitted behavioral descriptions of the "conformist" and "non-conformist" high school student.

The mean scores based on the responses of the two groups to the constructed Humor Preference Inventory were statistically compared to determine if significant differences existed. Additional treatment of the data involved the calculation of the reliability of the humor preferences. The magnitude of the preferential differences between the criterion groups as well as the level of reliability were considered in determining the feasibility of developing a fully normed multi-scale Humor Preference Inventory.

IV. CONTRACTUAL AGREEMENT WITH THE U. S. OFFICE OF HEALTH, EDUCATION, AND WELFARE

In May of 1964 a proposal to conduct the research on humor described in the previous section was submitted, under the provisions of Public Law 531, to the Small Contract

---

[1] Ralph F. Berdie and Wilbur L. Layton, Minnesota Counseling Inventory Manual (New York: The Psychological Corporation, 1957), pp. 1-14.

Division of the U. S. Office of Health, Education, and Welfare. The proposal was formulated in response to brochures received from the U. S. Commissioner of Education stating that funds were available for the support of doctoral research of significance to education.

In June, 1964, a contract to complete the proposed research was negotiated between the U. S. Office of Health, Education, and Welfare and the University of South Dakota. By the terms of the contract the U. S. Office agreed to provide the amount of $6,624.00 to defray the direct and overhead costs of completing the project. The official beginning and terminating dates of the project were set as July 15, 1964 and September 15, 1965, respectively.

V. DEFINITION OF TERMS

The following terms have been defined for purposes of this investigation:

The conformist group, as referred to in this investigation, are those students so nominated by their teachers as best fitting Berdie and Layton's description of the conformist student. According to this description, these students are primarily reliable, responsible, respectful of authority, but not overly docile.[1]

---

[1] Berdie and Layton, op. cit., p. 11.

The non-conformist group, as referred to in this study, are those students so nominated by their teachers as best fitting Berdie and Layton's description of the non-conformist student. According to this description, these students are primarily irresponsible, impulsive, rebellious against authority and self-centered.[1]

VI. DELIMITATIONS OF THE STUDY

The delimitations imposed on the study were:

1. This study was concerned only with the humor preferences of male sophomore high school students enrolled in Washington High School in Sioux Falls, South Dakota during the 1964-1965 school year.
2. This study was concerned only with the humor responses as measured by the Humor Preference Inventory which was developed in the process of the investigation.
3. This study was concerned with reactions to cartoon humor only, rather than with stimuli which were primarily verbal in nature.
4. No attempt was made to discover why any differences between the humor preferences of the criterion groups existed.

---

[1] Ibid.

VII. EXPECTED CONTRIBUTIONS

The principle contributions that may be expected to result from this investigation are:

1. A determination of the degree of the difference between the humor preferences of dichotomized groups of high school students.
2. A determination of the reliability of the responses to humor stimuli by the high school students.
3. It was hoped that implications as to the feasibility of utilizing humor preferences for personality assessment would be developed. A fully normed inventory with multiple scales for various personality types could be of much value in providing for a more comprehensive understanding of the personality dynamics of high school students.

VIII. ORGANIZATION OF THE DISSERTATION

Chapter II contains a review of the literature relevant to this investigation. Selected theories as to the essence of humor are cited. Research studies pertaining to the relationship of humor to other human variables and aspects of personality are also presented.

Chapter III is concerned with the plan of procedure in conducting this investigation. The nature and selection of the population, the development of the instrument used, and the statistical techniques employed are discussed in detail.

Chapter IV presents the analyses of the data for determining whether statistically significant differences exist between the humor preferences of the conformist and nonconformist criterion groups. The calculation of the reliability coefficients of the humor preferences of the students involved in the investigation are also included.

Chapter V is devoted to a general summary as well as the conclusions and recommendations. The Appendices contain supportative data pertinent to the study. The nomination forms used to identify the student groups involved as well as the Humor Preference Inventory itself are also included.

CHAPTER II

A REVIEW OF THE RELATED LITERATURE

The phenomenon of humor has stimulated and intrigued the minds of such renowned thinkers as Plato, Aristotle, Descartes, Hobbes and Kant to mention but a few. Unfortunately, almost as many distinct theories exist relative to the essence of humor as there were philosophers who gave attention to the subject. A considerable amount of divergence of opinion is still in evidence. Piddington has pointedly summarized the problem as follows:

> Probably no human reaction has given rise to so many conflicting opinions as those found in the works dealing with laughter. Thus Grieg tells us that laughter essentially involves emotion, Bergson that all emotion must be absent; Hazlitt states that man is the only animal that laughs, while Darwin claims to have observed the reaction in apes; even the widely held view that laughter is an expression of pleasure has been attacked by McDougall, whose theory depends on the opposite view. It would appear that the problem is still far from solution.[1]

Obviously men have long recognized the importance of the sense of humor as a basic personality trait. Yet, a paradox seemingly exists, since despite this recognition and extensive speculation, a paucity of scientific research concerning humor is apparent in the literature. This lack of research seems even more puzzling when one considers some of the more salient characteristics of humor, such as the frequency with which it is employed, the general cultural sanction of the humor response and its positive nature as opposed to the much studied negative emotions such as fear, anger, and the like. Only within the last decade and a half have any sustained and collaborated scientific efforts been made to explain the dynamics of humor. Furthermore, these represent just a beginning. Thus, it would appear that the age old questions of what humor is and why individuals vary so greatly in what they consider humorous largely remain without conclusive answers.

---

[1] R. Piddington, The Psychology of Laughter: A Study in Social Adaptation (London: Figurehead, 1933), p. 9.

It was not intended in this survey to discuss in depth the countless references to humor which appear in the literature. For the interested reader several excellent and comprehensive reviews are readily available such as those of Eastman,[1] Piddington,[2] and Bergler.[3] The purpose of this review was to assure the reader that the more influential thoughts and research concerning humor from the time of the ancients to the present were considered in this investigation.

---

[1] Max Eastman, The Sense of Humor (New York: Scribner and Sons, 1921).

[2] Piddington, op. cit.

[3] Edmund Bergler, Laughter and the Sense of Humor (New York: Intercontinental Medical Book Co., 1956).

The general criterion in the selection of the material presented has been the frequency of its mention in the literature and its pertinency to this investigation.

The first major section of this chapter will present a discussion of the more widely known theories of humor dating from the time of Plato to the present, including those of a philosophical, psychoanalytical, and sociological orientation. The results of selected experimental investigations concerning certain relevant aspects of humor will constitute the second major section.

I. A THEORETICAL BACKGROUND

The initial attempts at defining humor and its origin have come to us from the pen and lips of the philosophers. The contributions provided by this group will first be considered in the general order of their occurrence so that a background regarding the major trends of thought from the time of the ancients to the present might be established.

Philosophical theories of humor. One of the most ancient theories of humor to have come down to us is that found in Plato's works. His viewpoint that malice or hostility constitute the necessary element for laughter is still accepted by many. Plato held that both pain and pleasure must occur simultaneously to evoke laughter.

Accordingly, malice provides the painful element and laughter serves to alleviate the pain.[1] It seems noteworthy that the recognition of an aggressive element in humor dates back some twenty-three centuries.

Aristotle is credited by Bergler with the theory of the "not too tragic defect."[2] Thus, laughter was held to be a type of defect or a manifestation of ugliness in a person, though not necessarily painful or destructive. Similar to Plato's thinking, the element of maliciousness was considered by Aristotle to be indispensible to laughter, although the latter considered it aesthetically undesirable.[3]

Sharing the viewpoint that laughter may be a sort of ugliness was Cicero who remarked that it is initiated by "something disgraceful to which attention is drawn in a manner not disgraceful."[4] Cicero, therefore, was mildly prophetic of Freud's position as he saw humor as a substitute emotion for another which might be less well received.

---

[1] Plato, Philebus, trans. Fowler (London: William Heinemann, Ltd., 1962), pp. 331-341.

[2] Bergler, op. cit., p. 3.

[3] Ibid.

[4] Mary Grant, The Ancient Rhetorical Theories of the Laughable. (No. 21 of the University of Wisconsin Studies in Language and Literature, Madison: University of Wisconsin Press, 1924), p. 79.

Cicero, however, shared a doubt with Quintillian, a fellow Roman, that laughter had been sufficiently explained by anyone.[1]

After a gap of centuries, Ben Jonson's theory of humor as a "correction of human follies" appeared. Jonson viewed the comedy as having certain therapeutic functions and being primarily designed to correct faults rather than to provoke laughter. He explained that laughter exerts a function similar to purging and bleeding which restores the natural balance and equilibrium of the individual.[2]

Following Jonson, a paucity of literature concerning humor again existed until the seventeenth century. Thomas Hobbes then propounded that laughter results from a state of sudden glory or superiority over others. This heightened self-esteem is in direct contrast to the lowly roles frequently assumed by other characters in a joke or caricature. Of vital necessity is that the cause of laughter must contain something new and unexpected.[3] Hobbes was of the opinion that those who laugh most frequently were of a cowardly spirit as he declared that:

---

[1] Bergler, loc. cit.

[2] Ibid., p. 4.

[3] Thomas Hobbes, Leviathan (London: George Routledge and Sons, 1881), p. 34.

> It is incident most to them, that are conscious of the fewest abilities in themselves; who are forced to keep themselves in their own favour, by observing the imperfections of other men.[1]

In a position close to Hobbes' "sudden glory" theory, Alexander Bain saw laughter as an exposition of triumph over an enemy. He reasoned that after a flurry of activity, and when our work is done, we need to let off steam. The latter gives rise to spasmodic outbursts of laughter. Bain isolated two elements which he believed to be precursors to laughter: (1) a feeling of superiority, and (2) a sudden release from restraint. Consequently, laughter was assumed to be intimately related to pleasure following victory and/or accomplishment.[2]

Descartes, a contemporary of Hobbes, saw laughter as a sign of moderate joy, but also as a sort of blend of ingredients. Accordingly, joy must not be too intense and it must be mixed with some other elements such as hostility, surprise, or admiration. Descartes exemplifies this by a discussion of the laughter of derision. He describes this type of mirth as a portion of joy mixed with hostility which is brought about by the perception of a minor evil in an individual who might be regarded as deserving derision.[1] Spinoza, although recognizing a difference between derision and laughter, agreed with Descartes that "laughter and jest are a kind of joy and therefore are, if not excessive, good."[2]

---

[1] Ibid.

[2] Alexander Bain, The Emotions and the Will (New York: D. Appleton and Company, 1888), pp. 259-263.

David Hartley was perhaps the first writer to state that removal of fear is indispensable for humor and, in so doing, provided an explanation of the connection between unhappiness and laughter. He observed that the young child's first occasion of laughing aloud seems to be that of a surprise which brings on a momentary fear first, and in turn is followed by joy in consequence of the removal of that fear--in the same way that pleasure follows the removal of pain. Hartley adds further that if the same surprise which makes young children laugh is increased only by a slight degree, they will cry.[3]

In agreement with Spinoza and Descartes that laughter is an expression of joy was Charles Darwin. Darwin, however, attributed manifestations of humor to the higher apes as well as humans. He claimed to have found such stimuli as tickling, caressing, feeling, music, and bright colors effective in producing laughter with both.[1] The Yerkes, in support of Darwin, also attributed manifestations of humor to species other than humans. They reported that the great apes manifest facial grimaces very similar to the laughter of man and appear to display them following the mischievous tricks which they enjoy playing on their caretakers.[2]

---

[1] Rene Descartes, Descartes Selections, ed. Ralph M. Eaton (New York: Charles Scribner's Sons, 1927), pp. 388-390.

[2] Bergler, op. cit., p. 7.

[3] David Hartley, Observations on Man (London: Thomas Tegg, 1834), p. 450.

Darwin also recognized a radical difference between screams of distress and laughter, but concluded that it cannot be understood why these particular utterances are chosen as demonstrations of pain and joy respectively. He also declared that vocal and instrumental sounds are employed by the animal kingdom as a charm by one sex for another and as a means for a joyful meeting between parents and their offspring and between members of a common social community.[3] The sociologist Hayworth later placed this characteristic in a human setting when he remarked that laughter was originally a vocal signal to the members of the group that they may relax with safety.[1]

---

[1] Charles Darwin, The Expression of the Emotions in Man and Animals (New York: D. Appleton and Company, 1897), pp. 131-133.

[2] R. M. Yerkes and A. W. Yerkes, The Great Apes (New Haven: Yale University Press, 1929), pp. 154-161.

[3] Darwin, *op. cit.*, pp. 83-86.

Adhering largely to a physiological view of humor were Spencer and Kant. Spencer felt that laughter is a dispensation of overabundant nervous energy which escapes through the habitual avenues of the speech apparatus and the respiratory mechanism. If these channels are not sufficient in expending the energy, the entire body is convulsed.[2] Kant explained laughter as the result of an interplay of mental and physical gratification. Accordingly, pleasant thoughts occupy the body which produce a favorable influence upon vital bodily functions and health. This resultant organic pleasure, then, constitutes our enjoyment of the ludicrous.[3]

In contrast with the many theories regarding humor as an expression of joy, McDougall claimed that all laughter provoking situations are unpleasant. He held that laughter serves as a physiological protective device to be deployed in the face of unpleasant situations. For example, it may indeed protect the individual from becoming overly sympathetic and excessively disturbed over another's misfortunes. Without this mechanism McDougall felt that life and its burdens would be too actively annoying.[1]

---

[1] David Hayworth, "The Social Origin and Function of Laughter," Psychological Review, 35:367-384, September, 1928.

[2] Herbert Spencer, "The Physiology of Laughter," Macmillan's Magazine, 1:395-402, March, 1860.

[3] Immanuel Kant, Kritik of Judgment, trans. J. H. Bernard (London: Macmillan and Company, 1892), pp. 220-225.

One of the more modern theorists who drew his thoughts from the not-so-modern Aristotle and Kant is Eastman. Seeing laughter as an attempt to make the best of a bad thing, he regarded it not as an act of rejection and pain, but rather of acceptance and pleasure. Laughter to Eastman, results from "unpleasant experiences playfully enjoyed."[2]

For the most part the balance of the theories relevant to this investigation are of twentieth century origin and fall into two major categories: (1) psychoanalytical theories of humor, and (2) sociological theories of humor. These are discussed in the following sections.

Psychoanalytical theories of humor. Without a doubt the most widely known and perhaps the most complete of the psychoanalytical theories of humor is that of Sigmund Freud which appeared shortly after the dawn of the twentieth century. Seeing humor as one of the most fundamental defense mechanisms available to humans in adapting to human suffering, Freud stated:

---

[1] William McDougall, Outline of Psychology (New York: Charles Scribner's Sons, 1929), pp. 165-170.

[2] Max Eastman, The Enjoyment of Laughter (New York: Simon and Shuster, 1937), p. 51.

> By its repudiation of the possibility of suffering, it takes its place in the great series of methods devised by the mind of man for evading the compulsion to suffer--a series which begins with neurosis and delusions and includes intoxication, self-induced states of abstraction and ecstasy.[1]

According to the Freudian system, humor accomplishes its purpose by virtue of a saving of psychic energy. Laughter is due to a release of tension formerly necessary to maintain one's inhibitions. Humor affords a socially accepted avenue of expression. The witty retort to an aggressor gives vent to hostile feelings. Similarly, the risque joke allows release of sexual pressures and so on. Consequently, this saving in psychic expenditure caused by the breaking down of inhibitive tensions results in pleasure which, in turn, results in laughter.[2]

Bliss concluded from the implications of Freud that laughter is a physical sign of subconscious satisfaction and, as such reveals unconscious feelings and desires. He further described laughter as the result of a sudden release of inhibitive tensions.[1] Thus, Bliss incorporates the basic elements of Freud's theory while being strongly reminiscent of both Hobbes and Spencer.

---

[1] Sigmund Freud, "Humor," International Journal of Psychoanalysis, 9:3, January, 1928.

[2] Sigmund Freud, Jokes and their Relation to the Unconscious (in the Complete Psychological Works of Sigmund Freud, trans. James Strachey (London: The Hogarth Press, 1960), pp. 9-139.

The psychoanalytically oriented Feldman adjudged wit and humor to be a sort of faulty thinking in which the superego (generally equated with conscience) indulges to withdraw from reality. For example, fear of punishment is often followed by jesting as a means of escape.[2] Dooley saw the function of humor in a similar light as he proposed that the painful experiences are made to seem ridiculous or absurd by the superego; as a result the individual is liberated from guilt and suffering.[3]

In support of Dooley and Feldman's thinking, Levine and Redlich later presented clinical examples illustrating the principle that any distortion of a psychological event results from the function of one's defense mechanisms.[4]

---

[1] C. M. Diserens, "Recent Theories of Laughter," Psychological Bulletin, 23:247-255, May, 1926.

[2] Sandor Feldman, "A Supplement to Freud's Theory of Wit," Psychoanalytic Review, 28:201-217, April, 1941.

[3] Lucile Dooley, "The Relation of Humor to Masochism," Psychoanalytic Review, 28:37-46, January, 1941.

[4] Jacob Levine and Frederick C. Redlich, "Failure to Understand Humor," Psychoanalytic Quarterly, 24:560-572, October, 1955.

Being of the opinion that the failure to "get" a joke may be the result of a person attempting to protect himself from the anxiety which the joke arouses, they indicated that:

> The fact that such apparently innocous stimuli as humorous cartoons can provoke such defensive reactions attests to the fact that humor actually taps deep preconscious conflicts.[1]

One of the most recent psychoanalytic theories is that of Edmund Bergler. Although he criticized Freud for having failed to incorporate adequately the concepts of the ego and superego within his thinking, he does concur with the latter that humor is an invaluable defense mechanism. He further stated that it is primarily a fear reduction process and as such indispensable to the healthy personality.[2]

Sociological theories of humor. As suggested by Roberts, Bergson was perhaps the first writer to emphasize the basically social nature of laughter.[3] The latter maintained that society insists upon obedience from each of its members in serious as well as trivial matters and that it utilizes laughter as a social corrective. Bergson made the following comment:

---

[1] Ibid., p. 566.

[2] Bergler, op. cit., pp. 32-212.

[3] Allyn F. Roberts, "Some Relationships Between Personality and Humor" (unpublished Doctoral dissertation, Michigan State University, Ann Arbor, 1958), p. 5.

> Laughter is, above all, a corrective. Being intended to humiliate, it must make a painful impression against whom it is directed. By laughter, society avenges itself for the liberties taken with it. It would fail in its object if it bore the stamp of sympathy or kindness.[1]

Wallis, as reported by Diserens, is in agreement with Bergson's "social corrective" concept as he saw the stimulus to laughter as anything that departs from the standards of the group. He regarded the pleasures of laughter as a sense of creating group unity.[2]

George Mead's thinking on humor embodies the sociological aspects of Bergson as well as certain of the psychoanalytic elements of Freud's theory. Mead held that a social situation must be present in which it is possible to identify empathically with a person who is experiencing pain or embarrassment. Consequently, we laugh at such an individual because we are saved the displeasure which he is encountering.[3]

A uniquely different sociologically oriented theory is that of Ludovici who sharply called attention to the pathological aspects of laughter. He suggested that laughter may be a neurotic compensation giving rise to false feelings of complacency and by which "modern men are rocking themselves into a state of drowsy insensibility."[1] Over-satisfaction with the status quo and stagnation might well be the by-products if indeed Piddington's theory were an actuality.

---

[1] Henri Bergson, Laughter (London: Macmillan and Company, 1921), p. 197.

[2] Diserens, loc. cit.

[3] George H. Mead, Mind, Self, and Society (Chicago: University of Chicago Press, 1934), pp. 206-207.

Harms insisted that humor in whatever form it appears is always a social-psychological expression and/or medium. He stated that a baby's first laugh in reacting to his initial human contact is in effect his first language in his social environment.[2]

More recently, Cossarit pointed out that the proof of the social nature of humor is in its changing from group to group, and from time to time in the same group. Cossarit declared that the differences in what constitutes humor are not based on nationality of race, but upon whatever differences in life experiences may be incidental to race or nationality.[3]

The theories of humor: A concluding statement. It is obvious from the foregoing that none of the theories presented serves to answer with finality the question of the origin and function of humor. Nevertheless, these speculations constitute a valuable body of work as they serve as a background and point up a need for the experimental study of humor. Hopefully, objective research will ultimately contribute to the development of a more adequate theoretical structure. At this point we turn to a discussion of certain of the previous and pertinent scientific investigations in the field.

---

[1] A. M. Ludovici, The Secret of Laughter (New York: The Viking Press, 1933), p. 115.

[2] Ernest Harms, "Development of Humor," Journal of Abnormal and Social Psychology, 38:351-369, July, 1943.

[3] F. Cossarit, "Psychology of Humor," The American People's Encyclopedia (Chicago: The Spencer Press, 1952), pp. 10-749.

II. EMPERICAL INVESTIGATIONS OF HUMOR

It is generally agreed that the first research to be reported in the field of humor was done by G. Stanley Hall and Arthur Allin in 1897. Approximately 3000 responses were received to a questionnaire sent out requesting a description of all situations which individuals considered humorous. The investigators then classified the responses, gave a resume of various theories of laughter and concluded that all the current theories were inadequate and speculative, but that there were few more promising fields for psychological research than that of humor.[1]

A careful analysis of the experimental research on humor since the pioneer study of Hall and Allin revealed that it has principally involved the relationship of humor and the variables of age, intelligence, sex, racial and cultural factors, personality characteristics, and variant conditions and methods of presenting the stimulus. The results of certain of the pertinent investigations are presented in accordance with this structure. Selected factor analytic studies as well as certain previous attempts in developing tests of humor are also detailed in this section since these approaches have materially advanced the understanding of humor.

---

[1] G. Stanley Hall and Arthur Allin, "The Psychology of Tickling, Laughing, and the Comic," American Journal of Psychology, 9:1-41, October, 1897.

The age variable and humor. In an early review of experiments on humor Perl pointed out that the type of stimuli necessary to produce amusement is greatly dependent upon age, and that the sense of humor of the individual goes through a steady progression.[1] The marked relationship of age to the development of an individual's sense of humor is further indicated by the results of a number of additional studies since Perl's review.

The majority of writers appeared to take the behavior of the infant as a basis for their study and speculation in attempting to trace the development of laughter from the simple to the more complex forms. The innate character of laughter as a response to tickling has been established in an experimental study by Leuba in which an infant boy and girl were subjected to tickling for periods of three to six months respectively, with no other laughter producing stimuli allowed to operate. By the age of thirty-one weeks for the boy and twenty-five weeks for the girl laughter became the common response to the stimulus. Interestingly enough, while the tickling produced pleasure, causing the infants to draw the experimenter's hand toward them when he stopped, overstimulation resulted in strong movements of avoidance and crying.[1]

---

[1] Ruth Eastwood Perl, "A Review of Experiments on Humor," Psychological Bulletin, 30:752-762, December, 1933.

In another experiment of infant behavior Washburn found that the methods of stimulation which ellicited the first smiles in infants were also successful in evoking their first laughs. In addition, Washburn observed that as the physical distance between the experimenter decreased, the tendency to smile and to laugh increased.[2]

Overlade quoted an experiment by Wilson who studied the variances in humor preferences at different ages. The latter found that there was a general pattern of variation with increased age and that the first smile of the infant is quite likely a recognition of the parent. With increased age the trend was away from situations having to do with bodily contact and control toward more social and intellectual stimuli being necessary to produce a humor response.[1] Wilson concluded from the results of his investigation that laughter accompanying the violation of conventions, play on words, comparisons with indirect allusions, and absurdities tends to increase with age.[2]

---

[1] Clarence Leuba, "Tickling and Laughter: Two Genetic Studies," Journal of Genetic Psychology, 58:201-209, March, 1941.

[2] Ruth Washburn, "A Study of the Smiling and Laughing of Infants in the First Year of Life," Genetic Psychology Monographs, 6:397-537, November, 1929.

Graham purported to test the hypothesis that a relationship exists between the perception of humor and the level of personality development. Sixty pupils of three different age and school grade levels responded to forty-four cartoons arranged in sets of four. The subjects indicated the one cartoon in each set that they considered to be the funniest. The computation of chi-square values revealed significant differences beyond the .001 level of confidence among the choices of the children in the three grades.[3]

A pair of studies bearing some possible implications for classroom teachers and parents are those of Brumbaugh and Witty. The evidence from Brumbaugh's study tends to show that children in grades three through six inclusive are interested in humor that is distasteful to their teachers. The author subsequently concluded that unless a sympathetic interest in this type of humor is developed by the teachers and other adults who organize study and instructional materials, students may doubt their competence to guide them in their choice of reading material, motion picture selection, radio programs and other forms of entertainment.[1]

---

[1] Dan C. Overlade, "Humor Perception as Abstraction Ability," (unpublished Doctoral dissertation, Purdue University, Lafayette, 1954), pp. 23-24.

[2] *Ibid.*, p. 24.

[3] Leo R. Graham, "The Maturational Factor in Humor," *Journal of Clinical Psychology*, 14:326-328, July, 1958.

Witty's investigation of some 334 boys and girls in grades four, five, and six revealed that reading the comics is one of the pupils' favored leisure pursuits. In fact, it appeared to be the most popular of all reading activities. Many of the children found pleasure in making their own comics. In Witty's opinion, however, the elements of adventure and excitement incorporated into the comics may be more attractive to the middle grade child than humor since many of the comics read by this age group were devoid of humorous situations or incidents.[2]

Harms asked children of different age levels to draw a "funny picture." After an analysis of the drawings, he reported that there is an evolution of humor characterized by four stages. The first period lasting about three years is one of humor as pleasure. This is followed by a stage of humor replete with curiosity, and then by the comics, caricature, and school age period. Lastly, the stage of real humor involving a sympathetic understanding of the tragedies of life, does not arise until adolescence.[1] Wolfenstein, in close agreement with Harms, found that adolescent children are frequently uncertain in terms of how to react to jokes because they are struggling to make sense of them in reasonable, realistic terms as opposed to appreciating the humor in incongruous situations.[2]

---

[1] F. Brumbaugh, "The Place of Humor in the Curriculum," Journal of Experimental Education, 8:403-409, June, 1940.

[2] Paul Witty, "Children's Interest in Reading the Comics," Journal of Experimental Education, 10:100-104, December, 1941.

Raley engaged in one of the most extensive investigations to date involving humor and its relation to age. She constructed a humor attitude scale which was standardized by the ratings of 738 girls ranging in age from ten to eighteen years inclusive. Thirty-two cartoons comprised each of two forms of the scale. Four sets of eight categories of humor including men, women, romance, children, cars, animals, sports, and soldiers comprised each scale. Raley reported that the categories were ranked differently at the various age levels indicating that the humor preferences vary throughout the adolescent period. However, the range of preferences was much greater with the elementary subjects as opposed to the high school subjects.[1]

---

[1] Harms, loc. cit.

[2] Martha Wolfenstein, Children's Humor (Glencoe, Illinois: The Free Press, 1954), pp. 193-210.

One of the few studies reported involving the relationship of chronological age and humor with adult subjects was done by More and Roberts. Seventy-two subjects representing both sexes rated a group of fifty-six cartoons as to their degree of funniness. Eight basic themes including (1) hostility to authority figures, (2) escaping unpleasant situations, (3) hostility to peers, (4) concern over money, (5) narcissistic attitude toward self, (6) expression of commonly suppressed desires and impulses excluding sex, (7) expression of sexual impulses, and (8) supernatural or magical references. The authors found that middle class adults differed significantly on three categories from middle class students who were much younger. The adults found hostility to peers funnier, but rated cartoons with narcissistic and supernatural themes less funny than did the students.[2]

---

[1] Agnes Lucile Raley, "Responses of Girls to the Humor of Cartoons," (unpublished Doctoral dissertation, Fordham University, New York, 1942), p. 90.

[2] Douglas M. More and Allyn F. Roberts, "Societal Variations in Humor Responses to Cartoons," Journal of Social Psychology, 45:233-243, May, 1957.

In retrospect, the results of the studies cited in this section are virtually unanimous in their agreement that humor preferences vary as age increases throughout the stages of childhood, adolescence, and adulthood.

The intelligence variable and humor. Kimmins, in an early review of previous experiments, declared that, "humor appears to correlate very highly with intelligence."[1] Unfortunately, he cited little supportative evidence. In a later review Perl concluded that although wide individual differences have been found, and that preferences for certain jokes seems to depend upon intelligence, no close connection as yet has been substantiated.[2]

Using seven type categories of jokes--quantity, incongruity, unexpected, truth, superiority, repression, and ridiculous--Landis and Ross found a positive correlation between higher intelligence and the tendency to prefer jokes in the incongruous and truth categories.[3]

Eysenck reported a study by Loos who correlated intelligence scores with five aspects of the sense of humor:

---

[1] C. W. Kimmins, The Springs of Laughter (London: Methuen and Company, Ltd., 1928), p. 89.

[2] Perl, loc. cit.

[3] C. Landis and J. W. Ross, "Humor and its Relation to Other Personality Traits," Journal of Social Psychology 4:156-175, May, 1933.

(1) appreciation of humor in comparison to the majority, (2) appreciation according to the number of jokes deemed humorous, (3) appreciation of creative humor, (4) social stimulus quality of the individual indicated by the ratings of others of his sense of humor, and (5) self-ratings of the sense of humor. The subjects were seventy-six girls in a teacher training college with an average age of nineteen. No significant correlation between any of these aspects and intelligence resulted. A slight correlation occurred, however, between the appreciation of creative humor and intelligence.[1]

Cattell and Luborsky's factor analytic studies were another example of an attempt to investigate the relationship between intelligence and various categories of humor. Contrary to their early expectations, they found that only one of thirteen isolated clusters (derision-superiority) correlated significantly with intelligence.[2]

Intelligence failed to show itself as a significant determining factor in the comprehension of jokes in Omwake's study. Only very slight deviations in preferences for jokes resulted between subjects with IQ's above 124 and those below 110 in IQ.[1] Similar results were found by Stump[2] and Cunningham[3] who correlated the results of tests of humor with those of standardized intelligence tests.

---

[1] Hans J. Eysenck, The Scientific Study of Personality, (New York: The Macmillan Company, 1952), pp. 271-275.

[2] Raymond B. Cattell and Lestor B. Luborsky, "Personality Factors in Response to Humor," Journal of Abnormal and Social Psychology, 42:402-421, October, 1947.

Some evidence that extreme deviations in intelligence may have some bearing on humor manifestations is seen in the results of Terman's early studies of the gifted. Terman reported that teachers and parents rated a group of students with Stanford-Binet IQ's of 135 and above as being "above-average" in the sense of humor trait.[4] On the opposite extreme Levine and Redlich found that mentally defective subjects show less mirth, judge fewer cartoons as funny, and find humorous stimuli more difficult to understand than do subjects with normal intelligence.[5]

---

[1] Louise Omwake, "A Study of Sense of Humor: Its Relation to Sex, Age, and Personality Characteristics," Journal of Applied Psychology, 21:688-704, December, 1937.

[2] H. F. Stump, "Sense of Humor and its Relation to Personality, Scholastic Aptitude, Emotional Maturity, Height, and Weight," Journal of General Psychology, 20:25-32, January, 1939.

[3] Anne Cunningham, "Relation of Sense of Humor to Intelligence," Journal of Social Psychology, 57:143-147, June, 1962.

[4] Lewis M. Terman, The Intelligence of School Children (New York: Houghton Mifflin Company, 1919), pp. 165-184.

[5] Jacob Levine and Frederick Redlich, "Intellectual and Emotional Factors in the Appreciation of Humor," Journal of General Psychology, 62:25-35, January, 1960.

The results of most of the research in the area seem to indicate that less than extreme variances in intelligence do not have a significant effect on responses to most types of humor stimuli. Flugal appropriately summed up the current thinking in terms of the interrelationship between humor and intelligence as he stated:

> Curiously enough, in spite of the obvious dependence of the cognitive aspects of humor upon insight and the relative ease with which intellectual ability and scholastic achievement can be measured, there is still no agreement as to the exact relationship between intelligence and sense of humor either in children or in adults.[1]

The sex variable and humor. The sex variable as a causal factor affecting humor responses has been researched both in conjunction with other variables and as an entity in itself.

Eysenck gave to sixteen persons, eight men and eight women ranging in age between seventeen and thirty-five, a ranking test of 100 verbal jokes, fifty-two captioned pictures, and thirty-seven humorous items. No differentiation in preferences by the sexes for any of the previously identified humor factors resulted.[2] The same tests were given a year later to fifty men and fifty women with much the same results as with the smaller study.[1]

---

[1] J. C. Flugal, Humor and Laughter (Vol. II of the Handbook of Social Psychology, ed. G. Lindzey, Cambridge: Addison-Wesley Publishing Company, 1954), p. 726.

[2] Hans J. Eysenck, "The Appreciation of Humor: An Experimental and Theoretical Study," British Journal of Psychology, 32:295-309, April, 1942.

Ballman's study was conducted with the primary purpose of determining whether separate norms were needed for boys and girls for the Raley Cartoon Test. In contrast with Eysenck's results she found that boys showed a greater preference than girls for the categories of men, cars, animals, sports, and soldiers. Girls showed the greater preference for the remaining three categories, i.e., women, children, and romance. Ballman concluded that, on the basis of these results, separate norms were needed in the use of the Raley Test. It was also noted that girls showed a more marked interyear variability for preferences of categories than did boys.[2]

Omwake, in a study of the humor preferences of some 600 high school and college students, found that adolescent boys have a greater preference for the "shady" joke than did the girls of the same age and older college students.[3] In a later study by the same author, 336 high school pupils were requested to indicate their choice of four humorous completions for fifty situational descriptions. In the final analysis a greater variation due to grade in school rather than sex was shown. Only in one situation was there a marked percentage difference, however the sex factor was not obvious.[1]

---

[1] Hans J. Eysenck, "An Experimental Analysis of Five Tests of 'Appreciation of Humor,'" Educational and Psychological Measurement, 3:191-214, Autumn, 1943.

[2] Christine Ballman, "A Study of Adolescent Sex Differences in Humor Responses," (unpublished Master's thesis, St. Louis University, St. Louis, 1954), pp. 38-39.

[3] Omwake, *loc. cit.*

Conflicting evidence then appeared to exist in the literature in regard to the degree of influence which the sex factor may have upon humor responses. It may well be that the deviant results occurred because of differences in the stimulus materials utilized in the various studies.

Racial and cultural variables and humor. As Smith suggested, many assumptions have been made about the differences in the humor reactions of the various national, racial, and cultural groups.[2] The investigations selected for discussion in this section are illustrative of attempts to test the validity of certain of the most current and prevalent of these assumptions.

One of the earliest investigations of this type was performed by Wolff, Smith, and Murray. These authors wished to determine whether differences between the mirth responses of Jews and Gentiles would occur when jokes at the expense of Jews were presented. Some nineteen subjects, including both Jews and Gentiles, rated the humor content of eight control jokes and eight jokes which were judged as disparaging to Jews. It was found that Gentiles found Jew-disparagement jokes funnier than Jews did and that control jokes were about equally appraised by Jews and Gentiles.[1] The authors concluded that:

---

[1] Louise Omwake, "Humor in the Making," Journal of Social Psychology, 15:265-279, May, 1942.

[2] Nathalie Van Order Smith, "A Comparative Study of Reactions to Humorous Stimuli of Different Generations of Orientals and Caucasians in Hawaii," (unpublished Master's thesis, University of Hawaii, Honolulu, 1949), p. 25.

> The results of these experiments seem to demonstrate that the disparagement of an unaffiliated object is one type of mirth evoking situation . . . a positive response to such a joke is an index of negative sentiments in respect to the disparaged object.[2]

In a study of the humor preferences of subjects of different nationalities by Heim, fifty subjects of different nationalities rated thirty-two jokes from different countries as to their humor content. There were great individual differences in the ratings, but no characteristic differences between nationalities were found.[3] These results may seem to contrast with those of Wolff, et. al. It should be pointed out, however, that in Heim's experiment the stimulus material was not purposely saturated with negative sentiments to any particular group.

---

[1] H. A. Wolff, C. E. Smith, and Henry A. Murray, "The Psychology of Humor," Journal of Abnormal and Social Psychology, 28:345-365, January, 1934.

[2] Ibid., p. 361.

[3] A. Heim, "An Experiment on Humor," British Journal of Psychology, 27:148-161, October, 1936.

Eysenck, in a similar study, asked English, American, and German subjects who spoke English to place five kinds of humor stimuli in rank order preference. No significant differences were found between the preferences of the three national groups. Eysenck stated further that the agreement in regard to humor preferences was far more striking than their differences.[1]

In an investigation of racial differences in reactions to humor, Middleton matched fifty Negroes with fifty white subjects on several personal characteristics. Each of these one hundred subjects rated a series of anti-Negro and anti-white jokes. Rather surprisingly, Negroes found the anti-Negro jokes equally as funny as did the whites. In the case of the anti-white jokes, however, the Negroes reacted significantly more favorably than did the whites.[2] Middleton concluded that:

---

[1] Hans J. Eysenck, "National Differences in 'Sense of Humor': Three Experimental and Statistical Studies," Character and Personality, 13:37-54, September, 1944.

[2] Russell Middleton, "Negro and White Reactions to Racial Humor," Sociometry, 22:175-183, June, 1959.

> Some of the hypotheses based upon the theory of Wolff, Smith, and Murray that individuals tend to laugh at the expense of unaffiliated objects and not at the expense of objects for which they possess positive sentiments are confirmed by this study, but as many more must be qualified or rejected.[1]

The results of a recent and closely related experiment by La Fave seem quite pertinent here. The general hypothesis formulated was that jokes tend to be judged as funny by subjects whose reference (identification) group is esteemed and whose out-group is disparaged, and to be judged unfunny by subjects whose reference group is disparaged and whose out-group is esteemed. Four experimental groups (Catholics, Jehovah's Witnesses, Southern Baptists, and agnostics) each containing over fifty subjects were requested to sort twenty jokes on religion into five degrees of funniness. Each subject was chosen on the condition that both a participant observer and the subject himself indicated the appropriate one of the four groups as the subject's reference group. La Fave indicated that the particular groups were chosen because each has traditionally felt unfriendly towards the other three. The hypotheses for all four reference groups were substantiated to a highly significant degree.[2] La Fave reported with obvious satisfaction that:

---

[1] *Ibid.*, p. 181.

[2] Lawrence La Fave, "Humor Judgments as a Function of Reference Groups: An Experimental Study," (unpublished Doctoral dissertation, University of Oklahoma, Norman, 1961), pp. 67-68.

2

> Results show that conflicting findings among previous studies regarding the relationship between humor and identification are resolved through a more rigorous experimental design--and that the concept of a reference group . . . leads to such success in predicting humor judgments as earlier studies were unable to demonstrate.[1]

It appears from the results of the investigations discussed that significant differences are particularly apt to occur in the mirth reactions of the various national, racial, and cultural groups when sentiments which are disparaging and/or esteeming to a particular group are contained in the humorous stimuli used.

Personality variables and humor. Despite the divergent theories of the philosophers and certain conflicting experimental results, there is general agreement that a person's unique character and temperament will significantly affect his reactions to humor. Cattell and Luborsky have suggested:

> Psychologists from smoking room amateurs to Freud have long been aware that some of the more profound aspects of a man's personality may be revealed by observing the thing at which he laughs most heartily.[2]

---

[1] Ibid., p. 68.

[2] Cattell and Luborsky, op. cit., p. 402.

Brill reported that an effective method of gaining insight into a person's personality was to get him to tell his favorite joke.[1]

Many researchers have formulated certain classifications of laughter stimuli to facilitate their investigations. One of the early studies utilizing type categories of humor was that of Kambouropoulou. Having analyzed the diaries of a hundred college students and recorded all instances of humor during a period of one week, she attempted to correlate personality characteristics with preferences for seven categories of humor--quantity, incongruity, unexpected, truth, superiority, repression and ridiculous. Extroversion and a preference for the superiority class of items tended to go together. To a lesser degree the author found a positive relationship between social confidence and superiority humor.[2]

Landis and Ross in studying the reactions of college students and delinquents found that extroverts tended to rate highly jokes of the truth category while introverts preferred those of the repression category.[3] Eysenck later demonstrated that extroverts preferred sexual and simple jokes, while introverts preferred complex and non-sexual jokes.[1]

---

[1] Abraham A. Brill, "The Mechanism of Wit and Humor in Normal and Psychopathic States," Psychiatric Quarterly, 14:731-749, October, 1940.

[2] Polyxenie Kambouropoulou, "Individual Differences in the Sense of Humor and their Relation to Temperamental Differences," Archives of Psychology, 19:76-78, October, 1930.

[3] Landis and Ross, loc. cit.

As suggested by Roberts, the first study which was concerned with a relationship between the areas of tension and repression, and liking for humor dealing with similar themes was conducted by Murray.[2] Thirteen college subjects were asked to respond to ten jokes of an aggressive nature and six control jokes of a non-aggressive nature. High correlations resulted between the subjects' enjoyment of aggressive humor and certain of their scores on the Conservative-Radical Sentiments Test and the Social-Asocial Sentiments Test. Murray concluded that the enjoyment of aggressive humor is associated with individualistic, aggressive, and derisive sentiments. The author interpreted this as strong evidence that a relationship exists between repressed feelings and preferences for specific types of humor.[3]

---

[1] Hans J. Eysenck, "The Appreciation of Humor: An Experimental and Theoretical Study," loc. cit.

[2] Allyn F. Roberts, "Some Relationships Between Personality and Humor," (unpublished Doctoral dissertation, Michigan State University, Lansing, 1957), p. 8.

[3] Henry A. Murray, "The Psychology of Humor: Mirth Responses to Disparagement Jokes as a Manifestation of an Aggressive Disposition," Journal of Abnormal and Social Psychology, 29:66-81, April, 1934.

In experimentally verifying one aspect of psychoanalytic theory, Frankel investigated the relationship between certain dimensions of psychosexuality and cartoon preference. A test of thirty cartoons representing each of the six psychosexual dimensions measured by the Blacky Pictures was administered to eighty-two college students who served as subjects. Frankel found that disturbance in a given dimension was associated with dislike for cartoon dealing with the same dimension.[1]

Weiss, in attempting to confirm Frankel's findings also investigated: (1) the role of defense mechanisms in humor, (2) the effect of psychosexual conflict upon the recall of jokes, and (3) the importance of defense mechanisms in humor recall. Forty-five members of a social fraternity served as subjects. The Blacky Pictures and the Defense Preference Inquiry were employed as assessment devices to evaluate the intensity of psychosexual conflict and preference for certain defenses. The author reported that subjects with a strong conflict in a given psychosexual dimension repressed, within thirty minutes time, cartoons pertaining to that area of conflict. Subjects who preferred the defense of avoidance were found to repress the cartoons which represented conflict for them. In accord with Frankel's findings Weiss found that disturbance in oral sadism was associated with a dislike of humor related to the same dimension. In disagreement with Frankel's results, however, he found that conflicts in the dimension of anal expulsiveness were related to the enjoyment of anal humor.[1]

---

[1] Esther B. Frankel, "An Experimental Study of Psychoanalytic Theories of Humor," (unpublished Doctoral dissertation, University of Michigan, Ann Arbor, 1953), pp. 97-100.

The findings of Roberts and Johnson confirmed the main assumptions underlying the theories of humor offered by Freud and Mead. They observed that the perceived funniness of a humor stimulus is positively related to the degree to which the perceiver is able to empathize with the characters depicted in the humor stimulus.[2] These findings are in close accord with Brill's observations. The latter reported that an unconscious identification occurs with the hero at the same time a humorous attitude is assumed in consciousness.[3]

That psychiatric patients possess disturbances of humor response was shown by Levine and Abelson. It was found that the patient group disliked significantly more of the cartoons than did the non-psychiatric group. The patient group was also found to express less positive mirth toward the stimuli.[1] Somewhat related was the experiment carried out by Starer who studied the humor reactions of two groups of psychiatric patients who had been hospitalized for 1.12 years and 5.76 years respectively. There was a trend, although not statistically significant, for the patient hospitalized for the smaller duration to respond more positively to the stimuli. Starer concluded that one of the possible implications of the data is that a sense of humor is one of the variables to be considered in determining a patient's chances of adjustment outside the hospital.[2]

---

[1] Justin L. Weiss, "An Experimental Study of the Psychodynamics of Humor," (unpublished Doctoral dissertation, University of Michigan, Ann Arbor, 1954), pp. 119-124.

[2] Allyn F. Roberts and Donald M. Johnson, "Some Factors Related to the Perception of Funniness in Humor Stimuli," Journal of Social Psychology, 46:57-63, August, 1957.

[3] Brill, loc. cit.

A number of researchers have been particularly concerned with the elements of hostility and aggressiveness in humor. Grziwok and Scodel had 140 male college students rate a series of forty cartoons divided into four categories. The humor preferences of each subject were compared with their stories to seven Thematic Apperception Test cards and also with their performance on the Allport-Vernon-Lindzey

---

[1] Jacob Levine and Robert Abelson, "Humor as a Disturbing Stimulus," Journal of General Psychology, 60:191-200, April, 1959.

[2] Edward Starer, "Reactions of Psychiatric Patients to Cartoons and Verbal Jokes," Journal of General Psychology, 65:301-304, October, 1961.

Study of Values. The authors found that subjects high in aggression preferred aggressive humor while those low in aggression preferred non-aggressive cartoons depicting exaggerations or incongruities. In general, Grziwok and Scodel concluded that a preference for aggressive and sexual cartoons seems to be characterized by more fantasy aggression, more extraversion, less pre-occupation with intellectual values, and less psychological subtlety or complexity.[1] These results are in close agreement with those of an earlier investigation by Berkowitz who found that people with high hostile-aggressive feelings tend to find gratification in aggressive humor.[2] Similarly, Byrne reported that subjects who frequently express hostility, either overtly or covertly, find hostile cartoons to be significantly more amusing than do subjects who fail to express hostility.[3] In another study cartoons of an aggressive content were rated as being less funny by a "high anxious" group than by a "low anxious" group.[1]

---

[1] Rudolf Grziwok and Alvin Scodel, "Some Psychological Correlates of Humor Preferences," Journal of Consulting Psychology, 20:42, February, 1956.

[2] Martin Berkowitz, "A Study of Some Relationships between Anxiety and the Humor Response," (unpublished Doctoral dissertation, Pennsylvania State University, University Park, 1954), p. 67.

[3] Donn Byrne, "The Relationship between Humor and the Expression of Hostility," Journal of Abnormal and Social Psychology, 53:84-89, July, 1956.

A recent investigation involving humor and repression was carried on by O'Connell who trichotimized a group of normal college students on the basis of their ratings of approximately fifty jokes. The same subjects also reacted to the Repression-Sensitization (RS) Scale, an instrument used to gain an index of the degree to which each employed repression as a basic defense mechanism. The latter instrument was constructed from 182 items taken from the Minnesota Multiphasic Personality Inventory. The mean RS Scale scores of the three groups were determined and one-tailed t-tests were computed between means of the low, middle, and high humor groups. It was found that the low-humor appreciation group differed significantly from the middle and high groups in that its members employed repression to a greater degree.[2]

The results of the research left little doubt that subjects of different personality orientation also differ in their preferences and/or ratings of humor. This appeared to be particularly true when aggressive or hostile elements were included in the stimulus materials. Unfortunately, most of the studies were fragmentary in nature. As a result, there seemed to be a definite need for efforts aimed at coordinating the various isolated investigations involving the relationship of the sense of humor with other aspects of personality.

---

[1] John Dorris and Ella Fierman, "Humor and Anxiety," Journal of Abnormal and Social Psychology, 53:59-62, July, 1956.

[2] Walter O'Connell and Penny Peterson, "Humor and Repression," Journal of Existential Psychiatry, 4:309-315, Spring, 1964.

The effect of variant methods and conditions of presenting the humor stimuli. A number of factors other than those implicit within the subject himself have been found to influence the humor response. Perl mentioned the following circumstances which have demonstrated their effect in this regard: (1) the physical condition of the subject, (2) the manner of presentation (e.g., lantern slide, oral, group, individual, etc.), (3) the playing of music in the background, (4) the degree to which the subject feels free to express his amusement, and (5) the previous number of jokes presented.[1]

Hollingworth studied the effect of repetition upon the value judgment of a joke. He found that some jokes "waxed" and others "waned." Stated another way, the waxing jokes were judged funnier upon repetition, while waning jokes lost some of their humorous effect.[1] Very closely related were Martin's observations of both "fun-accumulation" and "fun-fatigue" (similar to the process of warming-up and fatigue in work) after having presented a whole series of jokes.[2]

---

[1] Ruth Eastwood Perl, "The Influence of Social Factors upon the Appreciation of Humor," American Journal of Psychology, 45:308-314, April, 1933.

Heim investigated the importance of the time interval between the presentation of the humor stimulus and the appearance of the response. The maximum pause was found to be five seconds beyond which there was little or no laughter.[3]

Sears, Hovland and Miller studied the behavior of a group of students who were subjected to extreme frustration. Aggressive versus non-aggressive jokes were used as one of the tests. Under the frustration condition, the subjects did not think the jokes were funny. A day later in a control situation, however, they felt the jokes were funnier than they had been in the experimental situation.[4]

---

[1] H. L. Hollingworth, "Experimental Studies in Judgment of the Comic," Psychological Review, 18:132-156, March, 1911.

[2] Lilian J. Martin, "Psychology of Aesthetics: Experimental Prospecting in the Field of the Comic," American Journal of Psychology, 16:35-116, January, 1905.

[3] Heim, loc. cit.

[4] R. R. Sears, C. I. Hovland, and N. E. Miller, "Minor Studies of Aggressive Behavior," Journal of Psychology, 9:275-295, April, 1940.

Eysenck found in 1943 that jokes already known to subjects tended to be better liked than others.[1] In seeming contrast Cattell and Luborsky reported that the mean average funniness rating of jokes fell from 24.7 to 17.2 between the first and second administration.[2] In view of their own results and those of Eysenck, Cattell and Luborsky concluded:

> . . . that the subject remembers, and therefore is familiar with, jokes that he especially likes; but that familiarity forced by circumstances (in this case re-reading all jokes) appreciably reduced the funniness of jokes in general.[3]

More recently, Lee and Griffith have confirmed Cattell and Luborsky's stand that subjects most readily remember humorous items which they particularly like.[4]

It would appear from the foregoing evidence that if one is to involve himself with the research of humor, he must be cognizant of the vital influence of the methods and conditions under which the humor stimuli are presented during the data gathering process.

---

[1] Hans J. Eysenck, "An Experimental Analysis of Five Tests of 'Appreciation of Humor,'" loc. cit.

[2] Cattell and Luborsky, loc. cit.

[3] *Ibid.*, p. 407.

[4] Joan C. Lee, and R. M. Griffith, "Forgetting of Humor: Repression?" American Psychologist, 15:436, July, 1960.

Factor-analytic studies of humor. The method of factor analysis was first applied in humor experimentation in 1942. As a technique it has been instrumental in stimulating certain advances in the field although conflicting results are in evidence. In employing factor analysis researchers hope to isolate and identify statistically valid categories of humor rather than rely on a priori classifications. Four studies of this type are detailed in this section.

Eysenck, using three tests of humor (jokes, cartoons, and humorous comparisons) requested sixteen adult subjects to rank the jokes in each test for funniness. The rankings were then intercorrelated and factor analyzed. In each of the three analyses a positive general factor and several bipolar factors appeared. The bipolar factors divided the subjects into types according to a preference for (1) sexual as opposed to non-sexual jokes, (2) complex as opposed to simple jokes, and (3) personal as opposed to impersonal jokes.[1]

Andrews also employed the factor analytic approach as an attempt to determine whether humor is a single entity of a general nature or whether it is composed of several unique elements. Andrews administered a self-constructed test of ninety items to 300 subjects. Twenty-four items were intercorrelated and factor analyzed. On the basis of a rotated factor matrix no general factor was found. Six relatively independent common factors were extracted however: (1) derision-superiority, (2) reaction to debauchery, (3) subtlety, (4) play on words, (5) sexual, and (6) ridiculous wise-cracks.[1] Andrews observed that:

---

[1] Hans J. Eysenck, "The Appreciation of Humor: An Experimental and Theoretical Study," loc. cit.

> The subject matter of humor serves as an excellent device for establishing rapport with an individual subject and thus it can further facilitate the analysis of personality.[2]

The factors found by Andrews failed to be confirmed in a later investigation by Cattell and Luborsky in which some of Andrews' jokes were utilized as part of the experimental material. This experiment was a preliminary study in an attempt to devise a projective personality test using humor preferences as the stimulus material. The ratings of one hundred jokes dealing with a variety of subject matter were intercorrelated in an attempt to discover functional unities. Five factors of personality believed to be revealed by the humor stimulus were identified: (1) good natured self-assertion, (2) rebellious dominance, (3) easy-going sensuality versus sex repression, (4) resigned derision, and (5) urbane sophistication.[3]

---

[1] T. Gaylord Andrews, "A Factorial Analysis of Responses to the Comic as a Study in Personality," Journal of General Psychology, 28:209-224, April, 1943.

[2] Ibid., p. 224.

[3] Cattell and Luborsky, loc. cit.

More recently, Abelson and Levine conducted a factor analytic study involving the responses to cartoons of 106 psychiatric patients. Three factors were extracted from the "like" responses and four from the "dislike" responses. The common elements which tended to make sets of cartoons collectively liked were inferred to deal with interpersonal hostility, voyeurism-exhibitionism, and self-degradation. The common themes disliked were identified as dealing with uncivilized or hostile behavior, victimization or trickery of others, overt display of female sexuality and imprudent disrespect for cherished institutions. The authors felt that these findings were in support of the psychoanalytical theory of humor.[1] They explained that the like factors seemed to involve the vicarious indulgence of impulses via the cartoons, and that the dislike factors "suggest a superego imposing prohibitions."[2]

The testing of humor. In perhaps the majority of the investigations cited some type of "test" of humor was administered. Most of these were used solely to expedite the particular research involved. Only a handful of assessment devices employing humor stimuli have ever been prepared and published commercially for diagnostic use. A careful search of source materials has revealed that none of these is currently available. Because of the central importance to this study, certain of the tests of humor which have purported to possess more than just experimental use have been selected for discussion here.

---

[1] Robert P. Abelson and Jacob Levine, "A Factor Analytic Study of Cartoon Humor Among Psychiatric Patients," Journal of Personality, 26:451-466, December, 1958.

[2] Ibid., p. 464.

Eysenck, writing in 1943, described four of the earlier published tests of humor, i.e., those of Moss, Claparede and Harrower, Almack, and Roback. In the method used by Moss the subject was required to select the funniest ending for a joke with several different endings being provided. In a similar method used by Claparede and Harrower, the subject was presented with a cartoon and asked to produce a funny caption for it. An alternate form requested the examinee to complete an unfinished joke. Almack's approach in determining a subject's humor consisted of comparing the absolute judgments or ratings of the funniness of various humorous items with a standard derived from a large norm group. As opposed to using ratings, the Sense of Humor Test developed by Roback compared the subject's ranking of a number of humorous items with that of a standard group.[1]

A word of comment on the utility of the above-mentioned tests of humor is perhaps in order. The norm groups used in developing these instruments appear to be representative of the typical population only. Consequently, the responses of examinees cannot be compared to those of individuals possessing personality abnormalities of various types. One wonders about the value of simply knowing whether a person's humor ratings are above or below that of the general population. Also, it would appear that with Claparede and Harrower's approach much subjective judgment is necessary to evaluate the captions and joke endings produced by the subjects.

---

[1] Hans J. Eysenck, "An Experimental Analysis of Five Tests of 'Appreciation of Humor,'" loc. cit.

The Raley Humor Test has been previously described. One of the researchers involved in its refinement stated that the instrument "even in its present state of development can be used to advantage."[1] Although the test reportedly possesses high reliability and substantial validity, it seems unclear just how school or clinical personnel could utilize its results which are based upon a comparison of the testee's preferences for various cartoon categories (e.g., cars, animals, sports, romance, etc.) with those of a norm group of typical adolescents.

Cattell and Luborsky's factor analytic efforts led to the publishing of the IPAT Humor Test of Personality. Form A includes ninety-one pairs of jokes. Subjects are asked to choose the funnier of the two jokes in each pair. On Form B the subject rates the humor of each of 112 jokes on a two point scale. The eleven scores obtainable from each form are based on the humor clusters isolated by the authors in previous research. The authors report reliability coefficients ranging from .10 to .60 for the various clusters.[1] This low level of stability as well as the scanty evidence of validity are the principal criticisms of the IPAT Humor Test of Personality as reported in The Fourth Mental Measurements Yearbook edited by Oscar Buros.[2]

---

[1] Ballman, op. cit., p. 37.

Although generally agreeing with the other critics that the IPAT Humor Test of Personality is not sufficiently well developed to be dependable, Wittenborn is in support of the use of humor per se in personality assessment as he stated that "despite the rather discouraging lack of reliability . . . the idea of a humor test for personality is a good one . . . "[3] In another evaluation of the IPAT Humor Test of Personality Yarnold and Berkeley suggested:

---

[1] Lestor B. Luborsky and Raymond B. Cattell, "The Validation of Personality Factors in Humor," Journal of Personality, 15:283-291, June, 1947.

[2] Oscar Krisen Buros (ed.) The Fourth Mental Measurements Yearbook (Highland Park, New Jersey: The Gryphon Press, 1953), pp. 61-62.

[3] Ibid., p. 62.

> The analysis of reactions to humor stimuli does seem to provide a potentially effective and subtle means for the measurement of personality. However, validation is necessary.[1]

Although not commercially available at the time of this writing, the Mirth Response Test (MRT) developed by Redlich, Levine, and Sohler appears to have certain potential uses in personality assessment. The MRT consists of thirty-six popular cartoons chosen from over 25,000 cartoons in various well-known magazines. The criterion for the selection was the importance of certain basic themes. The administration of the MRT consists of three successive steps: Free Expression, Sorting, and Inquiry.[2]

In the first step, the subject simply goes through the cartoons as though he were leafing through a magazine. The examiner observes and records the examinee's mirth responses and comments. In the Sorting task the subject is asked to sort the cartoons into three piles: (1) those he likes, (2) those to which he is indifferent and (3) those he dislikes. He is then to select the five cartoons he likes best and the five he likes least. The Inquiry is then conducted to determine his reactions to and understanding of each cartoon. The inquiry is primarily non-directive and the subject is encouraged to make any associative comments to the cartoons.[1]

---

[1] James K. Yarnold and Marvin H. Berkeley, "An Analysis of the Cattell-Luborsky Humor Test in Homogeneous Scales," Journal of Abnormal and Social Psychology, 49:543-546, 1954.

[2] F. Redlich, J. Levine, and T. Sohler, "A Mirth Response Test: Preliminary Report on a Psychodiagnostic Technique Utilizing Dynamics of Humor," American Journal of Orthopsychiatry, 21:717-732, October, 1951.

In the initial validation procedure, diagnostic formulations were made concerning each subject on the basis of his test responses. These were checked against previous clinical diagnoses. The authors reported that, in practically all cases, significant and valid propositions were made in terms of the subjects' fundamental needs, including those of an aggressive, dependent, and sexual nature.[2]

A recent experimental technique having some intriguing implications for the selections of candidates for teacher training is referred to by its authors as the Cartoon Situations Test (CST). The instrument is designed to assess personality dimensions relevant to interaction with young children. It consists of seven cartoons depicting teachers, children, and parents in a variety of situations. In the validation procedure, responses to the test by teacher trainees were compared with evaluations of student teacher performances.[1] The authors reported that, "the findings indicate that responses to the test are reliably related to important aspects of teaching."[2]

---

[1] *Ibid.*, p. 720.

[2] *Ibid.*, p. 732.

III. SUMMARY OF THE RELATED LITERATURE

An analysis of selected philosophical, psychoanalytical, and sociological theories of humor revealed that there is considerable difference of opinion both within and among these three schools of thought. The philosophers displayed the widest divergence of thought as they see laughter as being initiated by everything from inner feelings of great joy to extreme unpleasantness. The psychoanalysts commonly held that laughter serves as an invaluable defense mechanism in protecting the individual against anxiety and discomfort. Their viewpoints vary, however, in terms of specifically how this mechanism operates. Most sociologists agreed that a social situation is basic to the occurrence of laughter. They disagreed nevertheless, as to what particular social function laughter serves.

---

[1] Edna Shapiro, Barbara Biber, and Patricia Minuchin, "The Cartoon Situations Test: A Semi-structured Technique for Assessing Aspects of Personality Pertinent to the Teaching Process," Journal of Projective Techniques, 21:172-184, June, 1957.

[2] Ibid.

In a review of the results of certain scientific investigations of humor, it was found that chronological age, personality traits, as well as certain sociological and racial factors were significantly related to humor preferences. The relationship between the variables of intelligence and sex and humor is indefinite. Variances in the conditions and the manner of presenting the humor stimuli have vitally influenced the outcome of certain experiments.

Although the technique of factor analysis has aided in isolating certain clusters and factors of humor, conflicting evidence exists in terms of the specific factors which compose humor.

Most of the previously developed "tests" of humor appear to be of experimental use only at this time. Various methods have been employed including ranking, rating, free response, and choosing between two or more humor stimuli. Currently, no assessment device which utilizes reactions to humor is commercially available.

CHAPTER III

PLAN OF PROCEDURE

This study was concerned with the development of an appropriate humor preference inventory and the subsequent use of this instrument to determine if dichotomized student groups differ significantly in their preferences for humor.

This chapter presents the plan of procedures used in conducting the investigation. The first section is devoted to the development of the instrument used, i.e., the Humor Preference Inventory (HPI). The second section includes a discussion of the rationale and methodology employed in selecting the population to which the HPI was administered. A description of the statistical methods used in the final analyses of the data is presented in the third portion of the chapter.

I. THE DEVELOPMENT OF THE HUMOR PREFERENCE INVENTORY

A careful search of source materials revealed the existence of no suitable instrument which might be used for the purposes of this investigation. It was therefore necessary to construct an appropriate instrument with which to elicit humor judgments from selected subjects. Accordingly, a Humor Preference Inventory was developed.

Theory and Rationale

To a large extent the basic rationale and developmental procedures of the HPI are identical with those employed by Berdie and Layton in the construction of the Minnesota Counseling Inventory hereinafter referred to as the MCI.

The MCI, published in 1957, is a widely used instrument of personality assessment whereby teachers and counselors may acquire information about the dynamics and problems of high school age youth. Seven diagnostic scales are included in the inventory. To help identify students who might be overanxious to display socially acceptable characteristics, a "validity" or V scores is also available.[1]

In validating the MCI the authors prepared two nomination forms for each of the seven diagnostic scales. On one form were listed behaviorial descriptions of students considered "good" in relation to a particular scale. The opposite form included statements of behavior considered "poor" in relation to the same scale. High school teachers from twenty-eight schools in ten geographically scattered states then listed the students in their classes and home rooms who best conformed to these descriptions. In this way bipolar groups of students relative to each scale were identified. After the students had responded to the MCI, critical ratios were calculated to determine the degree of difference between the mean scores of the opposed groups. A critical ratio as large as 2.58 was considered significant. In such a case the probability is only one in 100 that the observed difference in the means could be due to chance fluctuations within the sample. Separate data were analyzed for boys and girls. Norming was also done on two different age levels, i.e., for the ninth and tenth grades and for the eleventh and twelfth grades.[1] Table I presents the critical ratios between the mean MCI scores of the bipolar groups of ninth and tenth grade boys and girls for each diagnostic scale.

---

[1] Ralph F. Berdie and Wilbur L. Layton, Minnesota Counseling Inventory Manual (New York: The Psychological Corporation, 1957), p. 3.

It is readily apparent from the data presented in Table I that the highest critical ratio occurred with boys nominated into the bipolar groups relative to the Conformity Scale of the MCI. For this reason it was decided to study the humor preferences of boys nominated as conformists and non-conformists in this investigation.

The developmental procedures of the Humor Preference Inventory were geared to the lower rather than the higher high school grade levels because of the greater student population therein. Consequently, larger numbers of students were available from which subjects were selected.

---

[1] *Ibid.*, pp. 10-24.

TABLE I

CRITICAL RATIOS BETWEEN MCI SCORES FOR BIPOLAR GROUPS OF NINTH AND TENTH GRADE BOYS AND GIRLS FOR EACH DIAGNOSTIC SCALE[a]

Diagnostic Scale	Boys	Girls
Family Relationships	5.71	6.51
Social Relationships	9.56	10.14
Emotional Stability	3.80	4.49
Conformity	10.49	7.38
Adjustment to Reality	1.47	2.19
Mood	7.09	4.00
Leadership	7.11	4.81

[a] Ralph M. Berdie and Wilbur F. Layton, Minnesota Counseling Inventory Manual (New York: The Psychological Corporation, 1957), pp. 15-21.

Steps in Constructing the HPI

The construction of any test or inventory demands certain preplanned and progressive steps. A brief description of the procedures necessary in developing the Humor Preference Inventory follows.

Selection of the stimulus materials. Cartoons were selected as the vehicle of humor since the results of other research appeared to indicate that pictorial stimuli more readily facilitate interpretation, projection, and identification than do verbal stimuli.[1]

Approximately 2500 cartoons representing many different themes were culled from such popular magazines as the Saturday Evening Post, Look, True, the New Yorker, etc., as well as other sources. In order to further assure that a wide variety of subject matter might be represented by the stimulus materials twenty-five basic themes were established. In formulating the themes consideration was given to the factors of humor identified by Andrews,[2] Eysenck,[3] Cattell and

---

[1] Frederick C. Redlich, Jacob Levine, and Theodore P. Sohler, "A Mirth Response Test: Preliminary Report on a Psychodiagnostic Technique Utilizing Dynamics of Humor," American Journal of Orthopsychiatry, 22:717-734, October, 1951.

[2] T. Gaylord Andrews, "A Factorial Analysis of Responses to the Comic as A Study in Personality," Journal of General Psychology, 28:209-224, April, 1943.

[3] Hans J. Eysenck, "The Appreciation of Humor: An Experimental and Theoretical Study," British Journal of Psychology, 32:295-309, April, 1942.

Luborsky,[1] Abelson and Levine,[2] and the categories of humor used in the studies by More and Roberts,[3] and Redlich, Levine, and Sohler.[4] The themes used in this study were as follows: (1) interpersonal aggression, (2) heterosexuality, (3) aggression between man and wife, (4) homicide and suicide, (5) distortion of body image, (6) acquisition and concern over money, (7) aggression against social institutions, (8) psychiatrist-patient relationships, (9) sibling relationships, (10) parent-child relationships, (11) incongruities, (12) excessive drinking, (13) dominance, (14) submission to aggression, (15) tension and emotionality, (16) escaping unpleasant situations, (17) laziness and slovenliness, (18) blunders and/or stupidity, (19) cannibalism and morbidity, (20) self-aggrandizement, (21) self-depreciation, (22) poor physical condition, (23) repressed wishes, (24) play on words and ideas, and (25) need for warmth and acceptance.

---

[1] R. B. Cattell and L. B. Luborsky, "Personality Factors in Response to Humor," Journal of Abnormal and Social Psychology, 42:402-431, October, 1947.

[2] Robert P. Abelson and Jacob Levine, "A Factor Analytic Study of Cartoon Humor among Psychiatric Patients," Journal of Personality, 26:451-456, December, 1958.

[3] Douglas M. More and Allyn F. Roberts, "Societal Variations in Humor Responses to Cartoons," Journal of Social Psychology, 45:233-243, May, 1957.

[4] Redlich, Levine, and Sohler, op. cit., pp. 719-720.

From the total array of the collected cartoons the investigator then selected the fifty which appeared to be most representative of each of the twenty-five themes, thus screening the total number to 1250. Cartoons that had their humor dependent upon current fads, political themes, color, obscure vocabulary, or that were of unusual size and shape were excluded. The selected cartoons were then placed into twenty-five different envelopes labeled according to their respective themes.

Next, in order to reduce the element of bias of selection on the part of the investigator, four judges delimited to 500 the number of cartoons.[1] Each of the judges was asked in turn to select the five cartoons from each envelope which, in his opinion, best embodied each of the twenty-five themes. The specific instructions to the judges were as follows:

> In each of the envelopes are a group of cartoons which are presumably representative of the themes listed on the front. Your task is to go through the cartoons in each envelope and select the five which, in your opinion, best represent each of the themes. Keep in mind that the themes are meant to apply primarily to the hero, or to the main character depicted in the cartoon.

After the first judge had made his selections, the second judge chose his five cartoons from the remaining forty-five in each envelope, and so on. In this way four sets of 125 cartoons each were selected. These four sets were arranged into four pre-rating booklets which were referred to as Sets 1, 2, 3, and 4.

---

[1] The judges who delimited the cartoons were: (1) Dr. Kevin Benson, clinical psychologist, (2) Mr. Richard Giles, high school counselor, (3) Dr. Robert Knapp, professor of educational psychology, and (4) Dr. Theodore LeMay, school psychologist.

Pre-rating the cartoons. The 500 cartoons included in the four sets were then individually rated on a five point scale of humor by high school students who had been nominated into conformist and non-conformist dichotomous groups by their respective teachers. The nomination forms used in the identification of the group members were supplied by and used with the written permission of Dr. Ralph Berdie, co-author of the Minnesota Counseling Inventory. These forms described earlier were the same as those employed in validating the Conformity Scale of the MCI. The author's statement of permission as well as copies of the student nomination forms may be found in Appendices A and B respectively.

Each of the two student groups rating the cartoons consisted of twelve male students enrolled at Vermillion High School, Vermillion, South Dakota, during the fall of 1964. The directions to the raters were as follows:

> You are to give each cartoon a score according to how funny it seems to you. If a cartoon is not funny or is only slightly funny to you, give it a 1. If it is funny, but below average in funniness, give it a 2, and if it is of average funniness, score it 3. If it is funnier than average, score it 4 and if it is very funny, give it a 5. Remember, there are no right or wrong answers, it's just how the cartoon appeals to you.

SCORE:

1 not funny or slightly funny
2 funny, but below average
3 average funniness
4 above average funniness
5 very funny

From the ratings of the twenty-four students three mean ratings were calculated for each of the 500 cartoons. These were the arithmetic averages of the ratings by (1) the conformist group, (2) the non-conformist group, and (3) the overall mean rating of both groups. As described in the next section, these mean ratings were used in developing a basic pool of preliminary items from which selections were made to be included in the Humor Preference Inventory used in this study.

Construction of the first group of preliminary items. From the 500 cartoons which had been pre-rated one hundred twenty-five preliminary test items were constructed. Each item consisted of two cartoons. In developing the paired items the following criteria were met: (1) the overall means of the two cartoons comprising the items differed by no more than .15, (2) the conformist group mean rating of one cartoon was required to differ from the non-conformist group mean rating of the other cartoon in the item by at least .50, (3) the cartoons in each pair were required to be as similar as possible in size, shape, and artistic style, (4) the cartoons in the pairs were also equated in terms of having no caption, a one-word caption, a single-line caption, and multiple-line captions, and (5) care was exercised so that the cartoons which appeared to have an appeal for one particular criterion group were placed as often on the left as on the right in the test items.

The 125 preliminary test items were then photo-reproduced and arranged into convenient test booklets and referred to as Form A.

Pre-testing with Form A. The preliminary items in Form A were administered to sixty-two sophomore boys who were enrolled in Washington High School in Sioux Falls, South Dakota, during the 1963-1964 school year. These students had been previously nominated into conformist and non-conformist criterion groups of thirty-one members each by their respective home room teachers. Each boy, in an individual testing situation, was requested to indicate which of the two cartoons in each item seemed funnier to him. The directions for responding to the items in Form A were as follows:

> You are about to be involved in a research project of considerable importance. The following inventory is used to obtain a record of individual preferences for humor. Each page consists of two cartoons. Look at and read both cartoon number 1 and cartoon number 2 and then decide which of the two seems more humorous to you.

> You are to mark your answers on the answer sheet supplied to you. If, for example, you feel cartoon 2 is the funnier, you should blacken between the parallel lines headed 2. Conversely, if cartoon 1 seems the more humorous to you, you should blacken the space headed 1. Make your marks heavy and black. Be sure to use a #2 lead pencil or softer.
>
> Check from time to time to be sure that the number of the page in the upper left-hand corner agrees with the item number on the answer sheet. Erase completely any answer you wish to change. Do not make any marks on the booklet.
>
> Remember, there are no right or wrong answers. An answer is "right" if it is truly your preference. The results will be kept strictly confidential.
>
> NOW PROCEED WITH THE INVENTORY. ANSWER EVERY ITEM.

The cartoon preferences for each student in the two groups were tabulated for each of the 125 items. Having been punched on cards, these data were processed by an IBM 1620 electronic computer programmed with the following chi-square formula from Wert, Neidt, and Ahmann:[1]

$$X^2 = \frac{N(ad-bc)^2}{(a+b)(c+d)(a+c)(b+d)}$$

where N was the total number of students in the two groups
a was the number of conformist students preferring cartoon #1
b was the number of conformist students preferring cartoon #2
c was the number of non-conformist students preferring cartoon #1
d was the number of non-conformist students preferring cartoon #2

---

[1] James S. Wert, Charles O. Neidt, and J. Stanley Ahmann, Statistical Methods in Educational and Psychological Research (New York: Appleton-Century-Crofts, Inc., 1954), p. 153.

In cases where the frequency of preference for a cartoon by either criterion group was less than five, the Yates correction formula was applied. This consisted of adding one-half case to the smallest frequency and adjusting all other frequencies so that the totals remained the same.[1]

The responses of the two criterion groups were found to differ significantly at at least the 10 per cent level on seventeen of the 125 items. Of these the chi-square values of twelve items were sufficiently high to reach the five per cent level of significance while five items attained the values necessary for the one per cent level.

The responses to Form A were also analyzed by means of the following formula presented by Tate.[2]

$$CR = \frac{(p_1 - p_2) - 0}{\sqrt{\frac{p_1q_1}{N_1} + \frac{p_2q_2}{N_2}}}$$

where p_1 and p_2 = the percentages of each subject group preferring a given cartoon

q_1 and q_2 = $1 - p_1$ and $1 - p_2$ respectively

N_1 and N_2 = the number of conformists and non-conformists respectively

---

[1] *Ibid*., p. 154.

[2] Merle W. Tate, *Statistics in Education* (New York: The Macmillan Company, 1955), pp. 437-440.

Critical ratios were yielded by Tate's formula which was specifically developed for the testing of the significance of differences between independent sample proportions. Interestingly, the two methods of item analysis, chi-square and Tate's critical ratio formula, yielded identical results in terms of the discriminative effectiveness of the Form A items. It was decided, however, to utilize the chi-square values for purposes of this investigation since there was no way in the critical ratio formula to compensate for extremely small frequencies of cartoon choices analogous to the adjustments that the Yates technique affords in chi-square analysis. The chi-square values as well as the critical ratios for all the 125 items in Form A are included in Appendix C.

Construction of a second set of preliminary items. An analysis was next made of the seventeen most highly discriminating items selected from Form A in terms of the themes preferred by the two groups of students. Chi-square values were computed for each criterion group separately to determine whether one cartoon was significantly preferred over the other by either group. The following formula was used.[1]

---

[1] Wert, Neidt, and Ahmann, op. cit., p. 152.

$$X^2 = \sum \left[\frac{(\text{Actual Frequency} - \text{Expected Frequency})^2}{\text{Expected Frequency}} \right]$$

The themes of the cartoons which were significantly preferred by each group are presented in Table II. The criterion used for the selection of these themes was a chi-square value of at least 3.841, which for one degree of freedom, was necessary for the .05 level of significance. In order to attain a value of 3.841 in this situation a cartoon must have been preferred by a minimum of 67 per cent of the group or twenty-one of the thirty-one members.

From the data in Table II it appeared that the conformists generally preferred themes of an incongruous or intellectual nature, e.g., play on words and ideas. In contrast, the non-conformists appeared to be much more willing to indicate a preference for cartoons carrying themes of an aggressive and anti-social nature.

In consideration of the unique theme preference of the criterion groups on the Form A items, a second group of 125 preliminary items was prepared with the objective of identifying additional items with potential discriminatory effectiveness. In preparing this second group of items referred to as Form B, the following criteria were met: (1) as with the Form A items, the overall means of the two cartoons in each pair differed by no more than .15, (2) at least one of the cartoons of each pair represented a theme

TABLE II

THEMES PREFERRED BY CONFORMISTS AND NON-CONFORMISTS FROM THE SEVENTEEN MOST HIGHLY DISCRIMINATING ITEMS IN FORM A

Conformists	Frequency	Non-Conformists	Frequency
Incongruities	3	Aggression against social institutions	2
Play on words and Ideas	2	Heterosexuality	2
Submission to Aggression	1	Interpersonal Aggression	2
Need for warmth and acceptance	1	Laziness and slovenliness	2
		Aggression between man and wife	2

NOTE: All themes listed in Table II were preferred by the respective bipolar group at at least the .05 level of significance. A chi-square of 3.841 was required for one degree of freedom.

which had been significantly preferred by one or the other bipolar group according to the previous analysis. In as many cases as possible, two directly opposing themes were paired in the same item with the hope of achieving maximum separation, and (3) the same conditions of equating the two cartoons in each item with respect to size, shape, artistic style, caption length, and item position were observed as was done with the Form A items.

Pre-testing with Form B. The 125 paired items in Form B were then administered to subjects in the same manner as were those in Form A. Thirty conformist and thirty non-conformist students, nominated by their teachers in the usual manner, served as subjects. These students were identified from ninth, tenth, and eleventh grade high school pupils from three Iowa cities, viz., Ida Grove, Sac City, and Storm Lake. Eighteen, twenty-two, and twenty male students from these high schools respectively responded to the items in Form B.

Chi-square again was used as the method of item analysis. Twenty-seven of the 125 Form B items achieved values of 2.706 necessary for the .10 level of significance. It will be remembered that seventeen of the Form A items reached a similar level of significance. These results may tend to indicate that there may be some value in first gaining an indication of the theme preferences of bipolar groups before constructing preliminary items.

Of the twenty-seven significant items from Form B, fifteen had chi-square values of 3.841 necessary for the .05 level, while five of the values were equal or greater than 6.635 which is required for the .01 level. The chi-square values of each of the 125 Form B items may be found in Appendix C.

Constructing the validity scale. In an attempt to identify certain students who might be attempting to "fake" or otherwise be unconscientious in their responses to the HPI, six items were selected from Forms A and B to serve as a Validity Scale. The nature of these items was such that one of the cartoons had been overwhelmingly preferred by both groups over the other. Chi-square values for these items was obviously very low since both groups reacted almost identically to them. The basic assumption in employing such items in the Validity Scale was that should a subject indicate preferences for cartoons which had been simultaneously rejected by both groups, it is probable that he may be generally insincere in responding to the inventory.

The items were scored in such a way that a high score on the Validity Scale would tend to indicate insincerity. The method of employing the Validity Scale is discussed in detail in Chapter IV of this study since its specific utilization was dependent upon the nature of the final data.

The Humor Preference Inventory--Its Composition and Methods for Scoring

The seventeen items from Form A as well as the twenty-seven items from Form B which had been effective in discriminating at the .10 level of significance or higher were selected to form the basis of the Conformity Scale of the Humor Preference Inventory. Within these forty-four items were interspersed the six Validity Scale items. Thus, the HPI was increased in length to a total of fifty items. Twenty-seven of the items had chi-square values of at least 3.841 necessary for the .05 level while ten items achieved values of 6.635 or more required for the .01 level. Table III lists the chi-square values of each of the fifty items of the HPI.

The fifty items of the HPI were then photo-reproduced in sufficient quantity to construct five test booklets which were subsequently bound with plastic ring binding to facilitate their administration to the subjects. Permission to use the cartoons for this research project was received from the respective publishers involved. The HPI in its entirety, a copy of the electrographic IBM answer sheet marked to achieve the maximum score for non-conformity, and a list of the sources of each cartoon are included in Appendix D.

TABLE III

CHI-SQUARE VALUES OF THE FIFTY HUMOR PREFERENCE INVENTORY ITEMS RESULTING FROM PRE-TESTING PROCEDURES

Item No.	Chi-square	Item No.	Chi-square
1	5.010	26	2.952
2	2.818	27	5.248
3	9.191	28	14.752
4	8.370	29	.162 (V)
5	2.874	30	8.148
6	0.000 (V)	31	4.168
7	10.949	32	5.455
8	3.590	33	7.381
9	5.430	34	3.300
10	3.528	35	7.806
11	1.667 (V)	36	6.458
12	3.799	37	5.187
13	2.850	38	6.111
14	16.321	39	3.003
15	3.799	40	3.504
16	3.851	41	.647 (V)
17	.003 (V)	42	2.853
18	3.175	43	4.163
19	7.939	44	3.215
20	6.466	45	5.554
21	8.148	46	.150 (V)
22	4.002	47	3.535
23	2.850	48	4.051
24	4.133	49	2.853
25	5.261	50	5.226

NOTE: All the items, with the exception of the six in the Validity Scale, had values of at least 2.706 which for one degree of freedom was necessary for the .10 level.

(V) Denotes Validity Scale items.

Scoring the Humor Preference Inventory. Because it was composed of item groups with different degrees of discriminative effectiveness, the HPI was capable of being scored by four different methods. Accordingly, keys were constructed to electrically score (1) the forty-four .10 items, (2) the twenty-seven .05 items, (3) the ten .01 items, and (4) the forty-four items differentially weighted. The latter method involved the assignment of differential weights to the various items according to their previous discriminative effectiveness. In determining the various weights for the different items the simple formula of $\frac{a-c}{10} - 1$ was used wherein the symbols a and c refer to the percentage of conformists and non-conformists respectively preferring the first cartoon in each item. The constant of one was subtracted since in no case was the value of $\frac{a-c}{10}$ less than two. Strong, in commenting upon the various weighting methods which were used in scoring the early versions of the Strong Vocational Interest Inventory stated:

> Offhand there would appear to be no reason why one system should be particularly superior to any other. In fact weights based on one-tenth a-c are approximately equal to those employed by us using either Kelly's original or his revised formula with a ± 4 range. If Guilford's constants were changed slightly his weights would also approximate $\frac{a-c}{10}$.[1]

---

[1] Edward K. Strong, Vocational Interests of Men and Women (Stanford: Stanford University Press, 1954), p. 616.

Table IV presents the values for a-c and the resulting weights for each of the HPI items when responded to in the keyed manner. Consistent with the method used by the MCI, the HPI was scored in all cases for non-conformity. Accordingly, the item values were given to subjects who chose the same cartoons which the non-conformists had preferred during the pre-testing procedures.

II. THE POPULATION TO WHICH THE HPI WAS ADMINISTERED

The population to which the completed fifty item Humor Preference Inventory was administered consisted of 111 sophomore boys enrolled at Washington High School in Sioux Falls, South Dakota, during the 1964-1965 school year. These students were nominated for inclusion into conformist and non-conformist dichotomous personality groups by their respective home room teachers.

Initial contact was made with Dr. Robert O'Hare, Administrative Assistant to the Superintendent of Sioux Falls Public Schools, who kindly consented to the use of pupils in Washington High School.

The thirty-four sophomore home room teachers at Washington High School were provided with the same nomination forms included in Appendix A which had been used during the earlier pre-rating and pre-testing procedures. The teachers were requested to indicate the two boys in their home rooms

TABLE IV

WEIGHTS ASSIGNED TO THE HPI ITEMS DERIVED FROM THE DIFFERENCES IN THE PERCENTAGES OF CHOICE BY THE BIPOLAR GROUPS

Item No.	a-c	Item Weight[a]	Item No.	a-c	Item Weight
1	26	2	26	23	1
2	20	1	27	29	2
3	39	3	28	50	4
4	32	2	29	--	- (V)
5	22	1	30	36	3
6	--	- (V)	31	26	2
7	42	3	32	30	2
8	24	1	33	32	2
9	27	2	34	24	1
10	22	1	35	36	3
11	--	- (V)	36	33	2
12	26	2	37	29	2
13	22	1	38	33	2
14	52	4	39	22	1
15	26	2	40	22	1
16	26	2	41	--	- (V)
17	--	- (V)	42	22	1
18	23	1	43	25	2
19	35	3	44	23	1
20	33	2	45	30	2
21	36	3	46	--	- (V)
22	25	2	47	23	1
23	22	1	48	25	2
24	26	2	49	22	1
25	28	2	50	30	2

[a] To calculate weights the formula $\frac{a-c}{10} - 1$ was used.

(V) Denotes Validity Scale items.

who best fitted the bipolar behavioral descriptions on the nomination forms. Nominations were restricted to boys of the Caucasian race. Next, the home room teachers were asked to list the two boys who next most closely conformed to each of the two behavioral descriptions.

In certain cases the teachers indicated that they did not know their students sufficiently well or for other reasons declined to list their first and/or second choices for either or both of the criterion groups. These reasons were accepted as valid and no further efforts were made to secure nominations from the teachers concerned. As a result the total population was limited to fifty-nine conformists and fifty-two non-conformists instead of the possible sixty-four in each group should each teacher have listed a first and second choice for each dichotomous group.

Equating the Conformist and Non-Conformist Criterion Groups

Although this investigation was primarily concerned with the analyses of the responses to humor stimuli by dichotomous personality groups per se, consideration was also given the control of the extraneous variables of age, intelligence, race, sex, and socio-economic level. Certain of the results of related research reported in Chapter II of this study indicates that these factors can be of influence in experiments concerning humor.

The age variable. When responding to the HPI, each subject was required to list his birthdate. The age of each boy was subsequently calculated in months. An additional month of age was accorded to each subject when fractional parts of a month equaled fifteen days or more. First, an analysis of the final data was made in which no consideration was made of age differences between the dichotomous groups of students. Secondly, to determine the influence of age variances, the statistical technique of analysis of covariance (described in detail in the next major section of this chapter) was used to hold the factor of age constant while simultaneously determining the degree of difference between the responses of the two groups.

The intelligence variable. Each of the subjects in this investigation had responded to the California Short-Form Test of Mental Maturity, Junior High Level, Form S, during the time they were enrolled in the ninth grade. The California test consists of seven tests which attempt to assess the individual's capacity of mental functioning in the areas of spatial relationships, logical reasoning, numerical reasoning, and verbal concepts. The results of these seven tests yield a Language IQ, a Non-Language IQ, and a Total IQ. Only Total IQ's however, were available for all subjects of this study and only such IQ's were used in the procedures of this study. Total IQ's for this test are reported to have a mean of 100 and a standard deviation of 16 for the standardization population.[1]

The IQ's from the California test were obtained from the students' cumulative records filed in the administrative offices at Washington High School. As in the case of the age variable, a first analysis of the final data was made disregarding any intelligence differences, whereas a second analysis was made wherein the IQ's were held constant by analysis of covariance.

The race variable. The race variable was controlled by selection. As previously stated, the home room teachers were instructed to limit their nominations to boys of the Caucasian race only. Also, it should be noted that the fact that no cartoon was used which carried an element of defamation or aggrandizement toward any particular racial or reference group was itself a controlling factor.

The sex variable. As with the race variable the sex factor was also controlled by selection. Only male students were used for this study on the basis of statistical data presented in the Minnesota Counseling Inventory Manual which indicated that the Conformity Scale of the MCI is more effective in discriminating between dichotomous groups of boys as opposed to girls for the ninth and tenth grade normative groups. The critical ratios as presented in Table I on page 66 of this chapter attest to this fact. An additional reason for limiting the population to boys only was the belief that the identification of non-conformist girls would be considerably more difficult than that for non-conformist boys.

---

[1] Elizabeth T. Sullivan, Willis W. Clark, and Ernest W. Tiegs, Manual: California Short-Form Test of Mental Maturity, Junior High Level, Form S (Monterey, California Test Bureau, 1957), pp. 2-9.

The socio-economic variable. Washington High School is located virtually in the center of the city of Sioux Falls, South Dakota. Conferences with school officials there have produced information that the four junior high school districts, viz., Axtell Park, Edison, Patrick Henry, and Whittier, from which the high school students come are uniquely different in terms of socio-economic representation. One of the districts was described as "predominantly professional," another as "high-middle class," while the two remaining were referred to as "middle class" and "lower-middle class."

Mr. Roger Raymond, Special Services Assistant employed in the Division of Student Personnel of the Sioux Falls Public Schools, kindly supplied the investigator with the following data in terms of the percentage of the 1964-

1965 sophomore class of Washington High School students which came from each of the four junior high districts:

District	Percentage
Axtell Park	23.6
Edison	24.8
Patrick Henry	24.3
Whittier	27.3
Total	100.0

From the above data the number of students from each of the four districts that might be expected to be included in each criterion group was calculated. Table V presents the actual and the expected number of students in each criterion group from each of the four junior high school districts. A chi-square analysis was made to determine if there was a significant difference between the actual representation in each criterion group and the number which would be expected to be included in each. A chi-square value of only 2.511 resulted from the computations which, for three degrees of freedom, is far below the necessary 11.345 required for the .01 level of significance with three degrees of freedom. Therefore, there seemed to be little difference in the proportions of students coming from each of the four junior high districts in the bipolar groups. Consequently, it also appeared that the socio-economic representation in the two groups was sufficiently similar for purposes of this study.

TABLE V

ACTUAL AND EXPECTED NUMBERS OF STUDENTS IN THE TWO CRITERION GROUPS FROM EACH OF THE FOUR JUNIOR HIGH SCHOOL DISTRICTS[a]

Criterion Group	Junior High School Districts				Total
	Axtell Park	Edison	Patrick Henry	Whittier	
Conformist					
Actual	17	13	16	13	59
Expected	14	15	14	16	(59)
Non-Conf.					
Actual	11	14	11	16	52
Expected	13	13	12	14	(52)
Total					111

[a] A chi-square value of 2.511 resulted, which with three degrees of freedom, was not significant.

III. STATISTICAL PROCEDURES EMPLOYED IN THE FINAL ANALYSES OF THE DATA

The statistical procedures necessary in constructing the Humor Preference Inventory have been enumerated. This section of Chapter III is devoted to a discussion of the principal methods employed in analyzing the final data resulting from the administration of the HPI to the population described in the previous major section of this chapter. In October, 1964, a consultation was held with Dr. Leonard S. Feldt, statistician at the University of Iowa, for assistance in determining which statistical procedures might be most appropriate for this investigation.

The t-test of Separate Group Variance-Unequal Size Groups

Since the principal question to be answered as a result of this investigation involved the degree of difference in HPI scores between dichotomous groups of high school students, the t-test of separate group variance for use with unequal size groups was necessary. The specific formula used is presented below:[1]

---

[1] Wert, Neidt, and Ahmann, op. cit., pp. 130-133.

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{x_1^2}{k_1(k_1 - 1)} + \frac{x_2^2}{k_2(k_2 - 1)}}}$$

where X = individual scores by group members

$\bar{X}_1$ and $\bar{X}_2$ = the conformist and non-conformist mean scores respectively

k_1 and k_2 = the number of conformists and non-conformists respectively

Appropriate degrees of freedom for the formula illustrated above is the mid-point of the entries used for $k_1 - 1$ and $k_2 - 1$.

Analysis of Covariance-Single Classification

Since the differences in age and intelligence between the two groups of subjects were not otherwise controlled, the technique of analysis of covariance was employed. Wert, Neidt, and Ahmann state:

> To provide the investigator with a means of attaining a measure of control of individual differences, the statistical technique known as analysis of covariance was developed. Analysis of covariance incorporates elements of the analysis of variance and of regression. In general, it will provide tests of significance for the comparison groups whose members may have been stratified and whose members have been measured with regard to one or more variable characteristics other than the criterion.[1]

Although the analysis of the data with the use of the previously described t-test of separate group variance served to answer the basic question posed in this investigation, i.e., whether or not the HPI scores of the dichotomous groups differ significantly, it was also thought valuable to assess the influence of the factors of age and intelligence. The formulas necessary for the execution of the analysis of covariance were those presented by Wert, et. al., are discussed below.[1] The sums of the raw scores plus the sums of squares provided the data needed for computation.

---

[1] Ibid., p. 343.

1. For calculating the sums of squares of the deviations away from the mean the formulas were:

   a. For total sample

$$\Sigma y^2 = \Sigma Y^2 - \frac{(\Sigma Y)^2}{N}$$

   where Y is the total score of both groups, y is the deviation value of Y, and N is the total number of cases.

   b. For within the subgroups:

$$\Sigma y^2 = \Sigma Y^2 - \frac{(\Sigma Y_c)^2}{k_c} + \frac{(\Sigma Y_{nc})^2}{k_{nc}}$$

   where ΣY_c is the sum of scores for the conformist group, ΣY_{nc} is the sum of scores for the nonconformist group, and k_c and k_{nc} are the total number of cases in each respective group.

---

[1] *Ibid.*, pp. 344-347.

In a similar fashion the sums of squares of the deviations away from the mean were calculated for the age variable (X_1) and the intelligence scores (X_2).

2. For calculating the crossproduct in deviation form between the HPI scores and age, the formulas were:

a. For total sample:

$$\Sigma x_1 y = \Sigma X_1 Y - \frac{(\Sigma X_1)(\Sigma Y)}{N}$$

b. For within the subgroups:

$$\Sigma x_1 y = \Sigma X_1 Y - \frac{(\Sigma X_{1c})(\Sigma Y_c)}{k_c} + \frac{(\Sigma X_{1nc})(\Sigma Y_{nc})}{k_{nc}}$$

The two remaining crossproducts, i.e., Y_2Y and X_1X_2 were calculated in deviation form in a similar manner.

3. The regression equation in deviation form for two X-variables was:

$$y = a_1 x_1 + a_2 x_2$$

To solve for a_1 and a_2, the normal equations were:

$$\Sigma x_1 y = a_1 \Sigma x_1^2 + a_2 \Sigma x_1 x_2$$
$$\Sigma x_2 y = a_1 \Sigma x_1 x_2 + a_2 \Sigma x_2^2$$

4. The sum of squares of residuals were found from the equation:

$$\text{S. S. of residuals} = \Sigma y^2 - (a_1 \Sigma x_1 y + a_2 \Sigma x_2 y)$$

5. To determine the adjusted mean HPI scores for the two criterion groups the equations were:

$$\overline{Y}_c = (\overline{X}_{1c} - \overline{X}_{1t})a_1 + (\overline{X}_{2c} - \overline{X}_{2t})a_2$$

$$\overline{Y}_{nc} = (\overline{X}_{1nc} - \overline{X}_{1t})a_1 + (\overline{X}_{2nc} - \overline{X}_{2t})a_2$$

where $\overline{X}_{1c}$ and $\overline{X}_{1nc}$ are the mean IQ's of the conformists and non-conformists, $\overline{X}_{2c}$ and $\overline{X}_{2nc}$ the mean age in months of the two groups, and $\overline{X}_{1t}$ and $\overline{X}_{2t}$ the mean IQ and mean age respectively, for all subjects combined.

The Calculation of Reliability Coefficients

Reliability, for purposes of this study, may be defined as an index of the consistence or stability of measurement for a given instrument. Persons knowledgeable in test construction generally agree that an adequate degree of reliability is a necessary prerequisite before test results can be considered meaningful. Thorndike has stated:

> In any study of prediction and in any study of improvement resulting from training, some degree of reliability in the measure of the criterion being predicted or in the ability being trained is imperative if one is to achieve any prediction on the one hand or any evidence of improvement on the other. One can make no worthwhile prediction of a completely unreliable criterion, and one can produce no improvement in a measure of performance which depends entirely on chance factors.[1]

---

[1] E. F. Lindquist (ed.), Educational Measurement (Menasha, Wisconsin: George Banta Publishing Company, 1961), p. 563.

Two basic methods were used for calculating reliability coefficients for the subjects' responses to the Humor Preference Inventory. The formulas are presented below.

The Spearman-Brown Formula. The Spearman-Brown formula permits the estimation of a reliability coefficient from a single administration of a single test by a subdivision of that test into two equal parts. The formula reads as follows:[1]

$$r_{(1+2)} = \frac{2r_{12}}{1+r_{12}}$$

where $r_{(1+2)}$ = is the reliability of the full length test

r_{12} = is the actual correlation between two half-tests

In order to estimate the effect upon the reliability of the HPI item groups if lengthened by certain degrees, the Spearman-Brown prophecy formula shown below was used:[2]

$$r_{Nxx} = \frac{Nrxx}{1 + (N-1)r_{xx}}$$

where r_{Nxx} = the reliability coefficient of a test after lengthening

N = the number of times the test was lengthened

r_{xx} = the coefficient of correlation prior to lengthening

---

[1] *Ibid.*, p. 580.

[2] Wert, Neidt, and Ahmann, *op*. *cit*., p. 332.

The Kuder-Richardson Formula. The second basic formula used to estimate the reliability of HPI scores was that developed by Kuder and Richardson. Essentially this formula is based on the interrelationships between the individual items and the total score. In cases where the total number of items in a test or subtest are uneven the Kuder-Richardson formula is thus more appropriate than the Spearman-Brown split-half method. The Kuder-Richardson procedure (their formula 20) takes the form:[1]

$$r_{tt} = \left(\frac{n}{n-1}\right)\left(\frac{{}^{2}_{t} - pq}{{}^{2}_{t}}\right)$$

where r_{tt} = the estimated reliability of the test

n = the number of items in the test

p = proportion of examinees responding in the keyed manner

q = 1-p

The basic Kuder-Richardson formula above becomes inappropriate when differential weights are ascribed to the various test items answered in the keyed manner. For this purpose the following modification developed by Dressel was utilized:[1]

---

[1] J. P. Guilford, Psychometric Methods (New York: McGraw-Hill Book Company, Inc., 1954), p. 380.

$$r_{tt} = \left(\frac{n}{n-1}\right)\left(\frac{{}^{2}_{t} - w^{2}pq}{{}^{2}_{t}}\right)$$

where w = the designated weights assigned to the various items answered in the keyed manner

(Other symbols are as previously defined)

---

[1] *Ibid.*, pp. 382-383.

CHAPTER IV

ANALYSIS OF DATA

This chapter presents the analysis of the final data obtained from the subjects' responses to the constructed Humor Preference Inventory (HPI). Four major phases of data analysis are reported: (1) a comparison of the HPI scores of conformists and non-conformists, (2) a comparison of the age and intelligence quotients of the two groups, (3) a comparison of the HPI scores of conformists and non-conformists with the influences of age and intelligence held constant, and (4) the calculation of reliability coefficients of the responses to the HPI items.

I. A COMPARISON OF THE HPI SCORES OF THE CONFORMISTS AND NON-CONFORMISTS

Due to its unique nature and item content, it was possible to score the Humor Preference Inventory by four different methods. These consisted of scoring (1) forty-four .10 level items, (2) twenty-seven .05 level items, (3) ten .01 level items, and (4) forty-four differentially weighted items.

After the total group of 111 subjects had responded to the HPI, the answer sheets were electrically scored with an IBM 805 scoring machine. An electronic computer, programmed with the t-test formula for separate group variance, was used to determine if significant differences existed between the mean HPI scores of the two groups.

A comparison of the HPI scores of the total population. Table VI presents the data relevant to the comparison of HPI scores of the entire population of conformists and non-conformists. The results are listed separately for each of the four HPI item groups. In each case the t-values were significant beyond the .001 level of confidence. The likelihood that these differences may have occurred due to chance errors was therefore less than one in one thousand. It may then be stated in answer to the first major question posed in Chapter I of this study, that the high school students dichotomized as conformists and non-conformists responded to the humor stimuli in a significantly different manner.

The largest t-values resulted from the responses to the weighted items (5.03) and to the .05 level items (4.93). Also worthy of mention is the fact that a slightly higher t-value resulted from the responses to the ten .01 level items (4.28) than on the forty-four .10 level items (4.26). This might imply that a shorter inventory of highly effective items may be as efficient as a more lengthy one composed of less effective items. This issue is discussed further at a later point in this chapter.

TABLE VI

A COMPARISON OF HPI SCORES OF THE TOTAL POPULATION OF CONFORMISTS AND NON-CONFORMISTS (N = 111)

Item Group	Conformist Group Mean (n=59)	Non-Conf. Group Mean (n=52)	Difference in Mean Scores	Observed t-Values
.10 level Items (k=44)	18.90 (S.D.=4.90)	22.81 (S.D.=4.68)	3.91	4.26***
.05 level Items (k=27)	11.02 (S.D.=3.15)	14.00 (S.D.=3.16)	2.98	4.93***
.01 level Items (k=10)	4.07 (S.D.=1.68)	5.52 (S.D.=1.84)	1.45	4.28***
Weighted Items (k=44)	34.36 (S.D.=9.08)	43.29 (S.D.=9.40)	8.93	5.03***

***Statistically significant at the .001 level. A t-value of 3.48 was required with 56 degrees of freedom.

Rationale and use of the Validity Scale. At this point a discussion of the rationale and use of the six-item Validity Scale seemed necessary since all subsequent data analyses were made in relation to the responses of only those subjects having satisfactory validity scores.

In scoring the subjects' responses for the Validity Scale, point values were accorded to subjects preferring the cartoons which had rarely been chosen by the subjects during the pretesting procedures. Thus, a high validity score by a student would tend to indicate that his responses were atypical and probably invalid.

The mean validity score for all 111 subjects was .88 with a standard deviation of .91. In following Kuder's general procedure it was decided to discard as presumably invalid all answer sheets with a validity score of three or more since the probability of getting a chance score of this magnitude would be less than five in one hundred.[1]

Five subjects--two conformists and three nonconformists--had validity scores of three or more. By disregarding the answer sheets for these subjects the population was reduced in number to 106.

---

[1] G. Frederic Kuder, Kuder Preference Record Occupational Form D Research Handbook (Chicago: Science Research Associates, 1956), p. 22-23.

A comparison of the HPI scores of subjects having satisfactory validity scores. A second analysis of the HPI scores of conformists and non-conformists was made considering only the responses of the 106 subjects who had satisfactory validity scores. The results of this analysis are presented in Table VII. Again, all the observed t-values were significant beyond the .001 level of confidence.[1] The differences in the mean scores and in the t-values were somewhat greater in this case than when the responses of the 111 subjects were involved.

Again the highest t-values resulted from the responses to the .05 level items (4.91) and the differentially weighted items (5.08) respectively. From this evidence it would appear that one should demand at least the .05 level of significance in terms of the previous discriminative effectiveness of items before including them in a diagnostic scale. A scale composed entirely of .01 level items would seem to be even more highly discriminating. One can compare the results of a scale composed of twenty-seven .01 level items with those received from the twenty-seven .05 level items by

---

[1] These results can be directly compared to the critical ratios reported for the diagnostic scales of the MCI in Table I, page 66 of this study since Berdie and Layton made no claim of having controlled the factors of age or intelligence. It can also be noted that the norm groups used to validate the MCI scales were much larger than those used in this investigation.

TABLE VII

A COMPARISON OF HPI SCORES OF CONFORMISTS AND NON-CONFORMISTS HAVING SATISFACTORY VALIDITY SCORES (N = 106)

Item Group	Conformist Group Mean (n=57)	Non-Conf. Group Mean (n=49)	Difference in Mean Scores	Observed t-Values
.10 level Items (k=44)	18.70 (S.D.=4.87)	22.86 (S.D.=4.81)	4.16	4.37***
.05 level Items (k=27)	10.89 (S.D.=3.13)	13.98 (S.D.=3.24)	3.09	4.91***
.01 level Items (k=10)	4.04 (S.D.=1.70)	5.55 (S.D.=1.86)	1.51	4.31***
Weighted Items (k=44)	34.00 (S.D.=9.03)	43.37 (S.D.=9.65)	9.37	5.08***

***Statistically significant at the .001 level. A t-value of 3.49 was required for 53 degrees of freedom.

multiplying the mean difference of 1.51 resulting from the ten .01 level items by 2.7. A mean difference of 4.08 would result as compared to 3.09 which was obtained with the twenty-seven .05 level items. In like manner, by multiplying 1.51 by 4.4 it is possible to calculate the mean differences which might result if the ten .01 level items were increased in number to forty-four. Accordingly, a mean difference of 6.64 would result as compared to 4.16 received from the forty-four .10 level items. Therefore, it would appear that there is a strong case for including only those items in a diagnostic scale which have been highly effective in pretesting procedures.

Because of the small gain in the mean difference and observed t-values and the greatly increased complexities of scoring, it would seem difficult to justify the further use of weighted items in a diagnostic scale utilizing responses to humor stimuli.

A comparison of the HPI scores of first choice subjects only. Because the population was so constituted, it was thought beneficial to make a separate analysis of the scores of the first and second choice subjects. Table VIII presents the data associated with the comparison of the HPI scores of the thirty-two first choice conformists with the twenty-eight first choice non-conformists. The t-values of the weighted items (2.93) reached the .01 level of

TABLE VIII

A COMPARISON OF HPI SCORES OF FIRST CHOICE CONFORMISTS WITH THOSE OF FIRST CHOICE NON-CONFORMISTS (N = 60)

Item Group	1st Choice Conformist Group Mean (n=32)	1st Choice Non-Conf. Group Mean (n=28)	Difference in Mean Scores	Observed t-Values
.10 level Items (k=44)	18.65 (S.D.=74)	21.61 (S.D.=4.15)	2.96	2.53*
.05 level Items (k=27)	11.00 (S.D.=2.95)	13.07 (S.D.=2.99)	2.07	2.65*
.01 level Items (k=10)	4.41 (S.D.=1.62)	5.14 (S.D.=1.88)	.73	1.59
Weighted Items (k=44)	34.34 (S.D.=8.58)	40.86 (S.D.=8.31)	6.52	2.93**

*Statistically significant at the .05 level. A t-value of 2.04 was required for 30 degrees of freedom.

**Statistically significant at the .01 level. A t-value of 2.75 was required for 30 degrees of freedom.

significance while those of the .05 level items (2.65) and of the .10 level items (2.52) were significant at the .05 level. The t-value of the responses to the ten .01 items (1.59) was not significant. This drop in the t-values as compared with the results involving all the subjects might normally be explained by the reduction in the number of subjects from 106 to sixty and the accompanying loss in degrees of freedom. The difference in the number of subjects, however, was actually a minor factor as was shown by the following analyses involving the second choice subjects.

A comparison of the HPI scores of second choice subjects only. Surprising results occurred from the comparison of the HPI scores of second choice conformists and nonconformists. As presented in Table IX, three of the four observed t-values were significant beyond the .001 level of confidence while the fourth (3.75) was only slightly lower than the required value (3.77). These highly significant values as compared with those resulting from the previous analysis involving only the first choice subjects present a phenomenon which is difficult to explain. It was logically expected that the reverse would occur, i.e., that a greater separation would occur with the responses of the first choice subjects. The fact that the number of second choice subjects (46) was fourteen less than that of the first choice subjects further compounded the problem. It might be

TABLE IX

A COMPARISON OF HPI SCORES OF SECOND CHOICE CONFORMISTS WITH THOSE OF SECOND CHOICE NON-CONFORMISTS (N = 46)

Item Group	2nd Choice Conformist Group Mean (n=25)	2nd Choice Non-Conf. Group Mean (n=21)	Difference in Mean Scores	Observed t-Values
.10 level Items (k=44)	18.76 (S.D.=5.02)	24.52 (S.D.=5.11)	5.76	3.75**
.05 level Items (k=27)	10.76 (S.D.=3.35)	15.19 (S.D.=3.17)	4.43	4.50***
.01 level Items (k=10)	3.56 (S.D.=1.68)	6.10 (S.D.=1.69)	2.54	4.98***
Weighted Items (k=44)	33.56 (S.D.=9.56)	46.71 (S.D.=10.27)	13.15	4.36***

**Statistically significant at the .01 level. A t-value of 2.81 was required for 23 degrees of freedom.

***Statistically significant at the .001 level. A t-value of 3.77 was required for 23 degrees of freedom.

hypothesized that the teachers' first choices may have been corrupted with personal biases while their second choices were actually more objective and hence more accurate in terms of being "true" conformists and non-conformists. One is then confronted with the somewhat ironic problem of whether or not to use second choices exclusively should further efforts be made in constructing additional HPI scales. At any rate the issue appears to merit further research.

II. A COMPARISON OF THE AGE AND INTELLIGENCE OF CONFORMISTS AND NON-CONFORMISTS

The age comparison. Table X contains the data relevant to the comparison of the age in months and the intelligence quotients of the bipolar groups. It can be noted that the non-conformists exceeded the conformists by 3.10 months of age. A t-value of 2.17 resulted from a comparison of the age differences of the two groups which was significant at the .05 level. This age difference, although small, appears logical since there is a likelihood that the non-conformist group due to its essential nature may have included a number of older students who have been retained in certain grades or who may have been expelled for disciplinary reasons and subsequently returned to school. This reasoning seems supported by the fact that the standard deviation for the age

TABLE X

THE COMPARISON OF AGE AND INTELLIGENCE QUOTIENTS OF CONFORMISTS AND NON-CONFORMISTS (N = 106)

	Conformist Group Mean (n=57)	Non-Conf. Group Mean (n=49)	Difference in Mean Scores	Observed t-Values
Age in Months	189.19 (S.D.=4.34)	192.29 (S.D.=9.04)	3.10	2.17*
CTMM IQ	119.28 (S.D.=9.63)	106.43 (S.D.=11.86)	12.85	6.00***

*Statistically significant at the .05 level. A t-value of 2.01 was required for 53 degrees of freedom.

***Statistically significant at the .001 level. A t-value of 3.49 was required for 53 degrees of freedom.

of the non-conformists (9.04) is more than twice as large as that of the conformists (4.34).

The intelligence comparison. The conformists outscores the non-conformists on the *CTMM* intelligence test by a margin of 12.85 IQ points. The t-value of 6.00 which resulted from the difference between the mean IQ's of the two groups was easily significant at the .001 level. While it was expected that the conformists might excel the non-conformists in IQ score, a difference of this magnitude was not anticipated. Three reasons may be suggested for this occurrence: (1) the already cited factor of bias on the part of the nominators, i.e., it may be that the teachers, although specifically warned otherwise, strongly identified the conformists and non-conformists with good and poor students respectively, (2) non-conforming behavior may simply be an artifact of less than average academic ability on the part of certain students; the non-conformist group may have included certain individuals who became frustrated with their academic tasks because of low ability and, as a result, became belligerent against the school and assumed the symptomatology of non-conforming behavior, and (3) in view of their nature, it is possible that the non-conformists may have been unconscientious in responding to the intelligence test.

3

The subjects' HPI scores were correlated with their age and IQ to gain an additional index of their relationship. A correlation coefficient of .19 occurred between the HPI scores and age indicating a low positive relationship. A correlation of -.45 resulted between the HPI scores and the IQ's of the subjects which tended to indicate that higher HPI scores were received by the lesser intelligent subjects.

A comparison of the age and intelligence of first choice subjects only. Table XI illustrates the data in reference to a comparison of age in months and the intelligence quotients of the conformists and non-conformists nominated as first choice only. This analysis was deemed necessary because of the unusual results received from the separate analysis of the HPI scores of the first and second choice subjects.

The first choice conformists averaged 2.4 months younger than the corresponding non-conformists group. The t-value resulting the age comparison was 1.34 which was insufficient for significance at the .05 level.

As with the total group, the first choice conformists exceeded the first choice non-conformists in IQ score. A mean difference of 11.29 IQ points occurred between the two groups of first choice subjects. The t-value of 3.89 associated with intelligence was significant at the .001 level.

TABLE XI

A COMPARISON OF AGE AND INTELLIGENCE QUOTIENTS OF FIRST CHOICE CONFORMISTS AND NON-CONFORMISTS (N = 60)

	1st Choice Conformist Group Mean (n=32)	1st Choice Non-Conf. Group Mean (n=28)	Difference in Mean Scores	Observed t-Values
Age in Months	189.56 (S.D.=4.60)	191.96 (S.D.=8.29)	2.40	1.34
CTMM IQ	118.44 (S.D.=7.98)	107.14 (S.D.=13.12)	11.30	3.89***

***Statistically significant at the .001 level. A t-value of 3.65 was required for 30 degrees of freedom.

A comparison of the age and intelligence of second choice subjects only. As shown in Table XII, the second choice conformists were 3.99 months younger, but averaged 14.89 IQ points higher than the corresponding non-conformist group. The t-value for the age factor was 1.69 which was not significant; however the t-value of 4.66 for intelligence was significant at the .001 level. These differences in the mean age and IQ scores are notably greater than those occurring in the analysis of the first choice subjects. Perhaps here may be a clue as to why the differences between the HPI scores of the second choice subjects were more highly significant than those of the first choice subjects since the greatest differences in HPI scores occurred in the situations where the greatest differences in age and intelligence also occurred.

III. A COMPARISON OF THE HPI SCORES OF THE BIPOLAR GROUPS WITH THE AGE AND INTELLIGENCE FACTORS HELD CONSTANT

Because of the significant differences in age and intelligence between the two groups of subjects, further analysis of the HPI scores was made involving the control of these extraneous variables. For this purpose the technique of analysis of covariance was employed. Therefore, while determining whether significant differences existed between the

TABLE XII

A COMPARISON OF AGE AND INTELLIGENCE QUOTIENTS OF SECOND CHOICE CONFORMISTS AND NON-CONFORMISTS (N = 46)

	2nd Choice Conformist Group Mean (n=25)	2nd Choice Non-Conf. Group Mean (n=21)	Difference in Mean Scores	Observed t-Values
Age in Months	188.72 (S.D.=3.92)	192.71 (S.D.=9.93)	3.99	1.69
CTMM IQ	120.36 (S.D.=11.30)	105.48 (S.D.=9.86)	14.88	4.66***

***Statistically significant at the .001 level. A t-value of 3.77 was required for 23 degrees of freedom.

HPI scores of the two groups of subjects, the influences of age and intelligence were statistically held constant.

For each of the four HPI item groups the data was processed in three separate steps in which (1) only the age factor was held constant, (2) only the intelligence factor was held constant, and (3) both the age and intelligence factors were held constant. In all three cases only the responses of the 106 subjects who had satisfactory validity scores were included.

The tables containing the results of the analysis of covariance computations are included within this section. The results are presented in terms of t-values rather than F-values because the former are more widely used and a direct basis of comparison with the previous results in this investigation is thereby afforded. In the interest of economy of space, the statistical data necessary to the analysis of covariance computations were relegated to the Appendices.

The age variable held constant. Table XIII presents the data in reference to a comparison of the HPI scores of conformists and non-conformists with the age factor held constant. As with the previous analyses in which age was not considered, the t-values associated with all of the HPI item groups were significant beyond the .001 level. The highest value (4.84) resulted from the responses to the twenty-seven

TABLE XIII

A COMPARISON OF HPI SCORES OF CONFORMISTS AND NON-CONFORMISTS WITH THE AGE FACTOR HELD CONSTANT (N = 106)

Item Group	Adjusted Conformist Group Mean (n=57)	Adjusted Non-Conf. Group Mean (n=49)	Diff. in Adjusted Means	Observed t-Values
.10 level Items (k=44)	18.92	22.71	3.79	4.01***
.05 level Items (k=27)	10.91	13.96	3.05	4.84***
.01 level Items (k=10)	4.06	5.53	1.47	4.35***
Weighted Items (k=44)	34.12	43.23	9.11	4.83***

***Statistically significant at the .001 level. A t-value of 3.49 was required for 53 degrees of freedom.

.05 level items and the lowest (4.01) was associated with the responses to the forty-four .10 level items.

In general, the values in Table XIII are only slightly lower than those contained within Table VII in which the age variable was not involved. Oddly, the t-value associated with the .01 level items (4.35) was actually higher than the corresponding value in Table VII. Thus, it would appear that the age differences between the two groups of subjects, even though previously reported as significant at the .05 level, did not serve to seriously corrupt the responses to the items of the Humor Preference Inventory.

The intelligence factor held constant. The second step in controlling the influence of extraneous factors was concerned with holding the factor of intelligence constant. The intelligence difference between the two groups was previously shown to be much more highly significant than that of age. The t-values contained in Table XIV which resulted from the control of the intelligence factor were lower than those which occurred when the age factor was held constant. The highest t-value occurred relative to the .05 level items (2.98) and was significant at the .01 level. Also significant at the .01 level were the t-values associated with the weighted item group (2.95) and with the .01 level items (2.71). The lowest t-value (2.18) resulted from the responses to the .10 level items and was significant at the .05 level

TABLE XIV

A COMPARISON OF HPI SCORES OF CONFORMISTS AND NON-CONFORMISTS WITH THE INTELLIGENCE FACTOR HELD CONSTANT
(N = 106)

Item Group	Adjusted Conformist Group Mean (n=57)	Adjusted Non-Conf. Group Mean (n=49)	Diff. in Adjusted Means	Observed t-Values
.10 level Items (k=44)	19.56	21.86	2.30	2.18*
.05 level Items (k=27)	11.34	13.46	2.12	2.98**
.01 level Items (k=10)	4.06	5.32	1.26	2.71**
Weighted Items (k=44)	35.54	41.58	6.04	2.95**

*Statistically significant at the .05 level. A t-value of 2.01 was required for 53 degrees of freedom.

**Statistically significant at the .01 level. A t-value of 2.67 was required for 53 degrees of freedom.

of confidence. As shown previously, the .10 level items also had the lowest t-value when the age variable was held constant.

The age and intelligence factors held constant. The final analysis in determining the degree of significance between the HPI scores of the two subject groups was concerned with holding both the age and intelligence factors constant. Table XV summarizes the t-values and other data relevant to this analysis. It can be noted that the t-values associated with both the .05 level items (2.89) and the weighted items (2.88) still held their significance at the .01 level while those of the .01 level items (2.61) and of the .10 level items (2.14) were significant at the .05 level. Thus, with the influence of age and intelligence being controlled, significant differences still existed between the humor preferences of the dichotomous high school student groups.

IV. THE RELIABILITY OF THE RESPONSES TO THE HUMOR PREFERENCE INVENTORY ITEM GROUPS

This section is concerned with the analysis of data relevant to the reliability of the responses to the HPI item groups. Since circumstances made it difficult to secure data from a test-retest situation, the Spearman-Brown and the Kuder-Richardson formulas were used to estimate the reliability coefficients from a single test administration.

TABLE XV

A COMPARISON OF HPI SCORES OF CONFORMISTS AND NON-CONFORMISTS WITH THE AGE AND INTELLIGENCE FACTORS HELD CONSTANT

Item Group	Adjusted Conformist Group Mean (n=57)	Adjusted Non-Conf. Group Mean (n=49)	Diff. in Adjusted Means	Observed t-Values
.10 level Items (k=44)	19.67	21.73	2.06	2.14*
.05 level Items (k=27)	11.63	13.11	1.48	2.89**
.01 level Items (k=10)	4.40	5.12	.72	2.61*
Weighted Items (k=44)	36.01	41.03	5.02	2.88**

*Statistically significant at the .05 level. A t-value of 2.01 was required for 53 degrees of freedom.

**Statistically significant at the .01 level. A t-value of 2.67 was required for 53 degrees of freedom.

In making the calculations the HPI scores from the first half of the particular item group were correlated with those from the last half. In the case of the twenty-seven .05 level items, the scores on the first thirteen items were correlated with the scores on the next thirteen with the twenty-seventh item not being considered. The uncorrected Pearson Product-Moment correlations for the various item and subject groups may be found in Appendix Q. The responses of seven different groups of subjects were used in making the analyses of reliability.

Table XVI contains the coefficients of correlations corrected by the Spearman-Brown formula for each of the HPI item groups with the exception of the weighted items for which it was not appropriate. Of the seven different correlations listed for each item group, the one in which the responses of the 106 subjects were involved was regarded as the most significant. For the 106 subjects the coefficients of reliability were .64 for the forty-four .10 level items, .61 for the twenty-seven .05 level items, and .42 for the ten .01 level items. In reference to certain of the other coefficients listed in Table XVI, it was intriguing to note that in five of six cases the responses by the second choice subjects were more highly reliable than those of the first choice subjects.

TABLE XVI

RELIABILITY COEFFICIENTS CORRECTED BY THE SPEARMAN-BROWN FORMULA FOR THE HPI ITEM GROUPS BASED ON THE RESPONSES OF SELECTED SUBJECT GROUPS

Item Group	All Subjects[a] (n=106)	All Conform. (n=57)	All Non-Conf. (n=49)	1st Choice Conform. (n=32)	2nd Choice Conform. (n=25)	1st Choice Non-Conf. (n=28)	2nd Choice Non-Conf. (n=21)
.10 level Items (k=44)	.64	.55	.62	.50	.61	.47	.79
.05 level Items (k=26)[b]	.61	.66	.36	.58	.74	.23	.39
.01 level Items (k=10)	.42	.35	.27	.35	.39	.40	-.05

[a] Berdie and Layton report an odd-even reliability coefficient of .60 for the thirty-five item Conformity Scale of the MCI based on the responses of 200 ninth and tenth grade boys.

[b] The responses to the twenty-seventh item of this group were not considered.

As an additional check, reliability coefficients were also calculated for the responses of the 106 subjects using the Kuder-Richardson formula. The Dressel modification of the K-R formula was necessary for the weighted items. The results were as follows:

Item Group	Reliability Coefficient
.10 level Items	.65
.05 level Items	.52
.01 level Items	.42
Weighted Items	.65

The above results seemed reasonably consistent with those which occurred with the use of the Spearman-Brown formula. Only in the case of the .05 level items were the results with the Kuder-Richardson formula somewhat lower.

Employing the Spearman-Brown prophecy formula. By employing the Spearman-Brown prophecy formula the investigator was able to directly compare the reliability coefficients of all the HPI item groups, *except the weighted items*, with those of the *MCI* Conformity Scale and the Psychopathic Deviate Scale of the *MMPI*. Accordingly, if the .05 and .01 level HPI item groups were increased in number to thirty-five, reliability coefficients of .67 and .72 would respectively occur. These results therefore compare quite favorably with the odd-even reliability coefficient of .60

reported by Berdie and Layton for the thirty-five item *MCI* Conformity Scale which was based on the responses of 200 ninth and tenth grade boys.[1]

The reliability of the HPI item groups were also compared to the fifty item Psychopathic Deviate Scale of the *MMPI* since the latter purports to measure the same general personality dynamics for adults as does the Conformity Scale of the *MCI* for adolescents. Assuming that the HPI item groups were increased in length to fifty items, the following coefficients of reliability were estimated:

Item Group	Reliability Coefficient
.10 level Items	.67
.05 level Items	.74
.01 level Items	.78

Three test-retest reliability coefficients ranging from .52 to .80 were reported by Hathaway and McKinley for the Psychopathic Deviate Scale of the *MMPI*.[1] Thus, the HPI item groups compared favorably in this case also, particularly in the case of the .05 and the .01 level items.

---

[1] Ralph F. Berdie and Wilbur L. Layton, *Minnesota Counseling Inventory Manual* (New York: The Psychological Corporation, 1957), p. 22.

[2] S. R. Hathaway and J. C. McKinley, *Minnesota Multiphasic Personality Inventory Manual* (New York: The Psychological Corporation, 1951), p. 7.

It seems appropriate to note that both the Conformity Scale of the MCI[1] and the Psychopathic Deviate Scale of the MMPI[2] do not compare well with the remaining scales of their respective inventories in terms of reliability. Consequently, it may be that the type of item necessary in differentiating between the two groups for this type of scale does not also embody the qualities resulting in high reliability. Since the remaining scales of both the MCI and the MMPI generally rank higher in reliability, this might also be true of other diagnostic scales involving humor.

---

[1] Berdie and Layton, *loc. cit.*

[2] Hathaway and McKinley, *loc. cit.*

CHAPTER V

SUMMARY AND CONCLUSIONS

This investigation was conducted for the purpose of determining whether the humor preferences of dichotomized groups of high school students differed significantly. More specifically, it was the purpose of this study to determine (1) if there was a significant difference between the humor preferences of high school students dichotomized as conformists and non-conformists and (2) to estimate the degree of reliability of the subjects' responses to the Humor Preference Inventory used in this investigation. It was hoped that from the magnitude of the preferential differences between the criterion groups as well as the level of reliability would develop implications as to the feasibility of utilizing reactions to humor for personality assessment.

This study was concerned only with the humor preferences of male sophomore high school students enrolled in Washington High School in Sioux Falls during the 1964-1965 school year. A further limitation was imposed by the nature of the instrument used. Only responses to pictorial humor were used rather than stimuli which were primarily verbal in nature.

In order to assure that the most influential of the theories and results of experimental research concerning humor would be considered in this investigation, a review of the related literature was undertaken. Wide divergence of opinion regarding the essence and function of humor was exhibited by the theorists. The philosophers saw laughter as being initiated by everything from inner feelings of great joy to extreme unpleasantness. The psychoanalysts commonly held that laughter serves as an invaluable defense in protecting the individual against anxiety and discomfort. The sociologists generally agreed that a social situation is basic to the occurrence of humor.

In reviewing the results of certain scientific investigations of humor, it was found that age, certain personality traits, and sociological and racial factors were significantly related to humor preferences. The relationship between the humor and the variables of sex and intelligence appeared indefinite. Variances in the conditions and manner of presenting the humor stimuli appeared to have significantly affected the outcome of certain experiments. The technique of factor analysis has aided in isolating certain factors and clusters of humor although conflicting evidence exists concerning the specific factors which compose humor. Most of the previously devised tests of humor appeared to be of value for experimental use only. Currently, no assessment device which utilizes reactions to humor is commercially available.

I. PROCEDURES OF THE INVESTIGATION

In order to obtain the essential data for this investigation, it was first necessary to construct an appropriate instrument with which to secure humor preferences from selected subjects. Accordingly, a Humor Preference Inventory was developed.

Since the results of previous research tended to indicate its greater effectiveness, pictorial humor rather than verbal stimuli was selected as the vehicle of humor. Some 2500 cartoons were collected and categorized as to theme content by the investigator. A group of judges aided in delimiting the cartoons to 500. The latter were in turn pre-rated as to humor content by high school students dichotomized as conformists and non-conformists. The mean ratings by the subjects as well as the respective themes of the cartoons were considered in constructing a preliminary pool of items from which selections were later made to include in the Humor Preference Inventory. Additional groups of conformist and non-conformist subjects responded to the preliminary items by indicating which of the two cartoons in each item they believed to be the funnier. The forty-four items which had discriminated between the two groups of subjects on at least the .10 level of significance were selected to form the basis of the Humor Preference Inventory.

A six-item Validity Scale was also included by which certain subjects responding to the HPI in an insincere manner could be identified. So that the data necessary in answering the basic question posed in this investigation might be obtained, the fifty item Humor Preference Inventory was then administered to the final population.

The population to which the HPI was administered was selected from the sophomore male students enrolled at Washington High School in Sioux Falls, South Dakota during the 1964-1965 school year. A total of 111 subjects were nominated for inclusion in the conformist and non-conformist criterion groups by their respective home room teachers. The nomination forms, on which behavioral descriptions were listed, were the same as those used by Berdie and Layton in the construction of the Conformity Scale of the _MCI_. Because the _MCI_ had demonstrated its greatest discriminative effectiveness with ninth and tenth grade boys nominated as conformists and non-conformists, it was decided to use a similar population for this study. Nominations were restricted to boys of the Caucasian race. There was no significant difference in the socio-economic representation within the two groups of subjects.

Because of the nature of its item content, the HPI was scored by four separate methods. Accordingly, mean scores were obtained from (1) forty-four .10 level items,

(2) twenty-seven .05 level items, (3) ten .01 level items and (4) forty-four differentially weighted items.

The t-test of separate group variance was used to determine if significant differences existed between the reactions of the two groups of subjects to the HPI item groups. Additional t-tests were computed to determine if the subject groups differed significantly with respect to age and intelligence. The technique of analysis of co-variance-single classification was subsequently employed to control the influence of age and intelligence between the two groups.

In calculating the reliability or internal consistency of the responses to the HPI, the Spearman-Brown correction formula as well as the Kuder-Richardson formula were used. To estimate the reliability coefficients of the HPI item groups if lengthened by various degrees, the Spearman-Brown prophecy formula was also employed.

II. SUMMARY OF FINDINGS

In order to provide answers for the basic questions posed for this investigation, the statistical techniques cited above were applied to the data. These analyses revealed:

1. that in comparing the HPI scores of the conformists and non-conformists

a) the scores of the conformists and non-conformists were significantly different at the .001 level of confidence on all four of the HPI item groups with the largest *t*-values being associated with the .05 level items and the weighted items,

b) eliminating the responses of the five students having unsatisfactory validity scores resulted in a slight increase in the t-values associated with three of the four HPI item groups,

c) the differences in all HPI scores were considerably greater between conformists and non-conformists nominated as second choice than between those nominated as first choice; and

2. that in comparing the age and intelligence quotients of conformists and non-conformists

a) the conformists averaged 12.85 IQ points higher than the non-conformists on the California Test of Mental Maturity with the associated t-value being significant at the .001 level of confidence,

b) the non-conformists as a group were 3.10 months older than the conformists with the associated t-value being significant at the .05 level of confidence,

c) the non-conformists exhibited considerably more variance in age, but only slightly more variance in intelligence than did the conformists,

d) the differences in the age and intelligence were greater for conformists and non-conformists nominated as second choice than for those nominated as first choice; and

3. when controlling the variables of age and intelligence

a) the differences in age between the subject groups did not appear to greatly affect their HPI scores, i.e., with the age variable being held constant, the t-values for all four item groups remained significant at the .001 level of confidence,

b) controlling only the intelligence variable served to materially lessen the t-values for all four item groups,

c) when both age and intelligence were held constant, the .05 items and the weighted items discriminated at the .01 level whereas the .10 and the .01 level items discriminated at the .05 level of confidence; and

4. that in the calculation of the reliability of the responses to the HPI item groups
    a) the reliability coefficients of the .05 and the .01 level HPI items were .67 and .72 respectively, when equated in length to the thirty-five item Conformity Scale of the MCI,
    b) the reliability coefficients of the three unweighted HPI item groups ranged from .67 for the .10 level items to .78 for the .01 level items when equated in length to the fifty item Psychopathic Deviate Scale of the MMPI,
    c) when equated in length, the items which discriminated best were also the most reliable, e.g., when all the item groups were equated in length, the .01 level items consistently achieved the highest reliability,
    d) in five of six cases, higher reliability coefficients were associated with the responses of the second choice subjects than with those of first choice subjects.

III. CONCLUSIONS

The following generalizations based upon the evidence presented in this investigation seem appropriate. The implications of these conclusions should be confined to the population included in this study or similar groups and the limitations imposed by the nature of the instrument should be observed.

1. It would appear that reactions to pictorial humor can be used to discriminate effectively between dichotomous groups of high school students.
2. The discriminative effectiveness of a diagnostic scale can be materially increased by utilizing only those items which have been highly effective in pre-testing procedures.
3. The use of differentially weighted items does not appear to be justified in that the gain in discrimination is not sufficient to compensate for the increased complexities of scoring.
4. The factor of intelligence appears to have a material effect upon the humor preferences of high school students.
5. The reliability of the subjects' responses to the HPI used in this investigation was equal to and in some cases in excess of that reported for certain widely used personality inventories.
6. In view of the discriminative effectiveness and the reliability of the responses to the instrument used in this study, it would appear that the

development of a fully normed Humor Preference Inventory with multiple scales for selected personality types would be feasible.

IV. IMPLICATIONS FOR FURTHER RESEARCH

Further research in areas closely allied to this investigation seems warranted. This research might be undertaken to seek answers to the following questions:

1. Would the Humor Preference Inventory used in this investigation discriminate significantly between conformist and non-conformist high school girls? What would be the reliability of the responses of girls to the HPI item groups?
2. Would the HPI used in this investigation discriminate significantly between conformists and non-conformists and a sample of the general school population?
3. Would a similar study in which conformists and non-conformists were matched in advance on the basis of age and intelligence yield similar results?
4. What are the reasons that higher reliability coefficients and greater differences in HPI scores occurred with second choice subjects rather than with first choice subjects?

5. What are the cartoon theme preferences for groups of individuals of selected personality types?
6. Would the humor preferences of bipolar groups of subjects other than conformists and non-conformists be significantly different?

BIBLIOGRAPHY

A. BOOKS

Bain, Alexander. *The Emotions and the Will*. New York: D. Appleton and Company, 1880.

Bergler, Edmund. *Laughter and the Sense of Humor*. New York: Intercontinental Medical Book Company, 1956.

Bergson, Henri. *Laughter*. London: Macmillan and Company, 1921.

Buros, Oscar Krisen (ed.). *The Fourth Mental Measurements Yearbook*. Highland Park, New Jersey: The Gryphon Press, 1953.

Darwin, Charles. *The Expression of the Emotions in Man and Animals*. New York: D. Appleton and Company, 1897.

BIBLIOGRAPHY

Descartes, Rene. *Descartes Selections*. Ed. Ralph M. Eaton. New York: Charles Scribner's Sons, 1927.

Eastman, Max. *The Enjoyment of Laughter*. New York: Simon and Schuster, 1937.

________. *The Sense of Humor*. New York: Scribner and Sons, 1921.

Eysenck, Hans J. *The Scientific Study of Personality*. New York: The Macmillan Company, 1952.

Guilford, J. P. *Psychometric Methods*. New York: McGraw-Hill Book Company, Inc., 1954.

Hartley, David. *Observations* on *Man*. London: Thomas Tegg, 1834.

Hobbes, Thomas. *Leviathan*. London: George Routledge and Sons, 1851.

Kant, Immanuel. *Kritik of Judgment*. Trans. J. H. Bernard. London: Macmillan and Company, 1892.

Kimmins, C. W. *The Springs of Laughter*. London: Methuen and Company, Ltd., 1928.

BIBLIOGRAPHY

A. BOOKS

Bain, Alexander. The Emotions and the Will. New York: D. Appleton and Company, 1888.

Bergler, Edmund. Laughter and the Sense of Humor. New York: Intercontinental Medical Book Company, 1956.

Bergson, Henri. Laughter. London: Macmillan and Company, 1921.

Buros, Oscar Krisen (ed.). The Fourth Mental Measurements Yearbook. Highland Park, New Jersey: The Gryphon Press, 1953.

Darwin, Charles. The Expression of the Emotions in Man and Animals. New York: D. Appleton and Company, 1897.

Descartes, Rene. Descartes Selections. Ed. Ralph M. Eaton. New York: Charles Scribner's Sons, 1927.

Eastman, Max. The Enjoyment of Laughter. New York: Simon and Shuster, 1937.

______. The Sense of Humor. New York: Scribner and Sons, 1921.

Eysenck, Hans J. The Scientific Study of Personality. New York: The Macmillan Company, 1952.

Guilford, J. P. Psychometric Methods. New York: McGraw-Hill Book Company, Inc., 1954.

Hartley, David. Observations on Man. London: Thomas Tegg, 1834.

Hobbes, Thomas. Leviathan. London: George Routledge and Sons, 1881.

Kant, Immanuel. Kritik of Judgment. Trans. J. H. Bernard. London: Macmillan and Company, 1892.

Kimmins, C. W. The Springs of Laughter. London: Methuen and Company, Ltd., 1928.

Lindquist, E. F. (ed.). Educational Measurement. Menasha, Wisconsin: George Banta Publishing Company, 1961.

Ludovici, A. M. The Secret of Laughter. New York: The Viking Press, 1933.

McDougall, William. Outline of Psychology. New York: Charles Scribner's Sons, 1929.

Mead, George H. Mind, Self, and Society. Chicago: University of Chicago Press, 1934.

Piddington, R. The Psychology of Laughter: A Study in Social Adaptation. London: Figurehead, 1933.

Plato. Philebus. Trans. Fowler. London: William Heinemann, Ltd., 1962.

Stevenson, Burton E. (ed.). The Home Book of Quotations. New York: Dodd, Mead and Company, 1949.

Strong, Edward K. Vocational Interest of Men and Women. Stanford: Stanford University Press, 1954.

Tate, Merle W. Statistics in Education. New York: The Macmillan Company, 1955.

Terman, Lewis M. The Intelligence of School Children. New York: Houghton Mifflin Company, 1919.

Wert, James E., Charles O. Neidt, and J. Stanley Ahmann. Statistical Methods in Educational and Psychological Research. New York: Appleton-Century-Crofts, Inc., 1954.

Wofenstein, Martha. Children's Humor. Glencoe, Illinois: The Free Press, 1954.

Yerkes, R. M. and A. W. Yerkes. The Great Apes. New Haven: Yale University Press, 1929.

B. BOOKS: PARTS OF SERIES

Flugal, J. C. Humor and Laughter. Vol. II of the Handbook of Social Psychology. Ed. G. Lindzey. Cambridge: Addison-Wesley Publishing Company, 1954.

Freud, Sigmund. *Jokes and their Relation to the Unconscious*. in the *Complete Psychological Works of Sigmund Freud*. Trans. James Strachey. London: The Hogarth Press, 1960.

Grant, Mary. *The Ancient Rhetorical Theories of the Laughable*. No. 21 of the *University of Wisconsin in Language and Literature*. Madison: University of Wisconsin Press, 1924.

C. PERIODICALS

Abelson, Robert P. and Jacob Levine. "A Factor Analytic Study of Cartoon Humor Among Psychiatric Patients," *Journal of Personality*, 26:451-66, December, 1958.

Andrews, T. Gaylord. "A Factorial Analysis of Responses to the Comic as a Study in Personality," *Journal of General Psychology*, 28:209-24, April, 1943.

Brill, Abraham A. "The Mechanism of Wit and Humor in Normal and Psychopathic States," *Psychiatric Quarterly*, 14: 731-49, October, 1940.

Brumbaugh, F. "The Place of Humor in the Curriculum," *Journal of Experimental Education*, 8:403-9, June, 1940.

Byrne, Donn. "The Relationship between Humor and the Expression of Hostility," *Journal of Abnormal and Social Psychology*, 53:84-89, July, 1956.

Cattell, Raymond B. and Lestor B. Luborsky. "Personality Factors in Response to Humor," *Journal of Abnormal and Social Psychology*, 42:402-21, October, 1947.

Cunningham, Anne. "Relation of Sense of Humor to Intelligence," *Journal of Social Psychology*, 57:143-47, June, 1962.

Diserens, C. M. "Recent Theories of Laughter," *Psychological Bulletin*, 23:247-55, May, 1926.

Dooley, Lucile. "The Relation of Humor to Masochism," *Psychoanalytic Review*, 28:37-46, January, 1941.

Dorris, John and Ella Fierman. "Humor and Anxiety," *Journal of Abnormal and Social Psychology*, 53:59-62, July, 1956.

Eysenck, Hans J. "The Appreciation of Humor: An Experimental and Theoretical Study," British Journal of Psychology, 32:295-309, April, 1942.

_______. "An Experimental Analysis of Five Tests of 'Appreciation of Humor,'" Educational and Psychological Measurement, 3:191-214, Autumn, 1943.

______. "National Differences in 'Sense of Humor': Three Experimental and Statistical Studies," Character and Personality, 13:37-54, September, 1944.

Feldman, Sandor. "Supplement to Freud's Theory of Wit," Psychoanalytic Review, 28:201-17, April, 1941.

Freud, Sigmund. "Humor," International Journal of Psychoanalysis, 9:3, January, 1928.

Graham, Leo R. "The Maturational Factor in Humor," Journal of Clinical Psychology, 14:326-28, July, 1958.

Grziwok, Rudolf and Alvin Scodel. "Some Psychological Correlates of Humor Preferences," Journal of Consulting Psychology, 20:42, February, 1956.

Hall, G. Stanley and Arthur Allin. "The Psychology of Tickling, Laughing, and the Comic," American Journal of Psychology, 9:1-41, October, 1897.

Harms, Ernest. "Development of Humor," Journal of Abnormal and Social Psychology, 38:351-69, July, 1943.

Hayworth, David. "The Social Origin and Function of Laughter," Psychological Review, 35:367-84, September, 1928.

Heim, A. "An Experiment on Humor," British Journal of Psychology, 27:148-61, October, 1936.

Hollingworth, H. L. "Experimental Studies in Judgment of the Comic," Psychological Review, 18:132-56, March, 1911.

Kambouropoulou, Polyxenie. "Individual Differences in the Sense of Humor and their Relation to Tempermental Differences," Archives of Psychology, 19:76-78, October, 1930.

Landis, C. and J. W. Ross. "Humor and its Relation to Other Personality Traits," Journal of Social Psychology, 4:156-75, May, 1933.

Lee, Joan C. and R. M. Griffith, "Forgetting of Humor: Repression?" American Psychologist, 15:436, July, 1960.

Leuba, Clarence. "Tickling and Laughter: Two Genetic Studies," Journal of Genetic Psychology, 58:201-209, March, 1941.

Levine, Jacob and Robert Abelson. "Humor as a Disturbing Stimulus," Journal of General Psychology, 60:191-200, April, 1959.

______, and John Rakusin. "The Sense of Humor of College Students and Psychiatric Patients," Journal of General Psychology, 20:183, April, 1959.

______, and Frederick C. Redlich. "Failure to Understand Humor," Psychoanalytic Quarterly, 24:560-72, October, 1955.

______. "Intellectual and Emotional Factors in the Appreciation of Humor," Journal of General Psychology, 62:25-35, January, 1960.

Luborsky, Lestor B. and Raymond B. Cattell. "The Validation of Personality Factors in Humor," Journal of Personality, 15:283-91, June, 1947.

Martin, Lilian J. "Psychology of Aesthetics: Experimental Prospecting in the Field of the Comic," American Journal of Psychology, 16:35-116, January, 1905.

Middleton, Russell. "Negroe and White Reactions to Racial Humor," Sociometry, 22:175-83, June, 1959.

More, Douglas M. and Allyn F. Roberts. "Societal Variations in Humor Responses to Cartoons," Journal of Social Psychology, 45:233-43, May, 1957.

Murray, Henry A. "The Psychology of Humor: Mirth Responses to Disparagement Jokes as a Manifestation of an Aggressive Disposition," Journal of Abnormal Social Psychology, 29:66-81, April, 1934.

O'Connell, Walter and Penny Peterson. "Humor and Repression," Journal of Existential Psychiatry, 4:309-315, Spring, 1964.

Omwake, Louise. "Humor in the Making," Journal of Social Psychology, 15:265-79, May, 1942.

Omwake, Louise. "A Study of Sense of Humor: Its Relation to Sex, Age, and Personality Characteristics," Journal of Applied Psychology, 21:688-704, December, 1937.

Perl, Ruth Eastwood. "The Influence of Social Factors upon Appreciation of Humor," American Journal of Psychology, 45:308-314, April, 1933.

____. "A Review of Experiments on Humor," Psychological Bulletin, 30:752-62, December, 1933.

Raley, Agnes Lucile and Christine Ballman. "Theoretical Implications for a Psychology of the Ludicrous," Journal of Social Psychology, 45:19, February, 1957.

Roberts, Allyn F. and Donald M. Johnson. "Some Factors Related to the Perception of Funniness in Humor Stimuli," Journal of Social Psychology, 46:57-63, August, 1957.

Redlich, R., J. Levine, and T. Sohler. "A Mirth Response Test: Preliminary Report on a Psychodiagnostic Technique Utilizing Dynamics of Humor," American Journal of Orthopsychiatry, 21:717-32, October, 1951.

Sears, R. R., C. I. Hovland, and N. E. Miller. "Minor Studies of Aggressive Behavior," Journal of Psychology, 9:275-95, April, 1940.

Shapiro, Edna, Barbara Biber, and Patricia Minuchin. "The Cartoon Situations Test: A Semi-structured Technique for Assessing Aspects of Personality Pertinent to the Teaching Process," Journal of Projective Techniques, 21:172-84, June, 1957.

Spencer, Herbert. "The Physiology of Laughter," Macmillan's Magazine, 1:395-402, March, 1860.

Starer, Edward. "Reactions of Psychiatric Patients to Cartoons and Verbal Jokes," Journal of General Psychology, 65:301-304, October, 1961.

Stump, H. F. "Sense of Humor and its Relation to Personality, Scholastic Aptitude, Emotional Maturity, Height, and Weight," Journal of General Psychology, 20:25-32, January, 1939.

Washburn, Ruth. "A Study of the Smiling and Laughing of Infants in the First Year of Life," Genetic Psychology Monographs, 6:397-537, November, 1929.

Witty, Paul. "Children's Interest in Reading the Comics," Journal of Experimental Education, 10:100-104, December, 1941.

Wolff, H. A., C. E. Smith, and Henry A. Murray. "The Psychology of Humor," Journal of Abnormal and Social Psychology, 28:345-65, January, 1934.

Yarnold, James K. and Marvin H. Berkeley. "Analysis of the Cattell-Luborsky Humor Test in Homogeneous Scales," Journal of Abnormal and Social Psychology, 49:543-546, 1954.

D. ENCYCLOPEDIA ARTICLE

Cossarit, F. "Psychology of Humor," The American People's Encyclopedia. Chicago: The Spencer Press, 1952.

E. UNPUBLISHED MATERIALS

Ballman, Christine. "A Study of Adolescent Sex Differences in Humor Responses." Unpublished Master's thesis, St. Louis University, St. Louis, 1954.

Berdie, Ralph F. and Wilbur L. Layton. "Student Evaluation Form." Minneapolis: The University of Minnesota, 1953. (Mimeographed)

Berkowitz, Martin. "A Study of Some Relationships between Anxiety and the Humor Response." Unpublished Doctoral dissertation, Pennsylvania State University, University Park, 1954.

Frankel, Esther B. "An Experimental Study of Psychoanalytic Theories of Humor." Unpublished Doctoral dissertation, University of Michigan, Ann Arbor, 1953.

La Fave, Lawrence. "Humor Judgments as a Function of Reference Groups: An Experimental Study." Unpublished Doctoral dissertation, University of Oklahoma, Norman, 1961.

Overlade, Dan C. "Humor Perception as Abstraction Ability." Unpublished Doctoral dissertation, Purdue University, Lafayette, 1954.

Raley, Agnes Lucile. "Responses of Girls to the Humor of Cartoons." Unpublished Doctoral dissertation, Fordham University, New York, 1942.

Roberts, Allyn F. "Some Relationships between Personality and Humor." Unpublished Doctoral dissertation, Michigan State University, Lansing, 1957.

Smith, Nathalie Van Order. "A Comparative Study of Reactions to Humorous Stimuli of Different Generations of Orientals and Caucasians in Hawaii." Unpublished Master's thesis, University of Hawaii, Honolulu, 1949.

Tollefson, Donald Lloyd. "Differential Responses to Humor and their Relation to Personality and Motivation Measures." Unpublished Doctoral dissertation, University of Illinois, Urbana, 1961.

Weiss, Justin L. "An Experimental Study of the Psychodynamics of Humor." Unpublished Doctoral dissertation, University of Michigan, Ann Arbor, 1954.

F. MANUALS AND BULLETINS

Berdie, Ralph F. and Wilbur L. Layton. *Minnesota Counseling Inventory Manual*. New York: The Psychological Corporation, 1957.

Hathaway, S. R. and J. C. McKinley. *Minnesota Multiphasic Personality Inventory Manual*. New York: The Psychological Corporation, 1951.

Kuder, G. Frederic. *Kuder Preference Record Occupational Form D. Research Handbook*. Chicago: Science Research Associates, 1956.

Sullivan, Elizabeth T., Willis W. Clark, and Ernest Tiegs. *Manual: California Short-Form Test of Mental Maturity*. Junior High Level, Form S. Monterey: California Test Bureau, 1957.

APPENDICES

APPENDIX A

AUTHOR'S LETTER OF PERMISSION TO USE STUDENT NOMINATION FORMS

UNIVERSITY OF Minnesota

OFFICE OF THE DEAN OF STUDENTS
STUDENT COUNSELING BUREAU · MINNEAPOLIS 14

December 12, 1963

Mr. Stanley L. Wenck
Assistant Director
Student Guidance and Counseling
University of South Dakota
Vermillion, South Dakota

Dear Mr. Wenck:

Enclosed is the rating form you requested. I have indicated on the form the four sections in which you were interested.

You have my permission to use this form as you wish, only with the provision that you let me know what you find.

Good luck with your research.

Yours sincerely,

Ralph F. Berdie
Professor of Psychology
and Director

RFB:pj

Enclosure.

APPENDIX B

STUDENT NOMINATION FORMS ADAPTED FOR USE IN THIS STUDY

INSTRUCTIONS FOR USING STUDENT NOMINATION FORMS

Humor Preference Inventory Project

INSTRUCTIONS TO RATERS

In order to determine the relationships between humor preferences of students and opinions teachers have about students, we are asking teachers to complete the attached rating forms. These forms have been developed to help teachers designate students who show particular behavior patterns. Your cooperation will help us determine the usefulness of a humor preference inventory. It is impossible to overstate the value of accurate ratings by professional educators in the development of this type of test. The researcher feels deeply indebted to each of you.

Before making your ratings, please note the following points carefully:

> The probability is small that you will have had contacts with any student who fits every facet of a provided description. Therefore, it is important that you recognize this limitation and use the descriptions as general pictures in nominations of the best fits from among the students of your acquaintance.
>
> All students you nominate need not be in your classes at the present time. The only general restriction in this respect is that the student still be in school and that he be one with whom you have had some first-hand experience.
>
> Probably most important, you should guard against the generalization of personality traits, such as assigning all negative characteristics to the trouble maker and all positive characteristics to the socially adept student. This is intended as a caution to you that your nominations should be restricted to the behavioral descriptions rather than to your generalized feelings about certain students.

Name of Rater____________________

Position____________________

Date____________________ School____________________

NON-CONFORMIST NOMINATION
FORM EMPLOYED IN THIS INVESTIGATION

What boy in home room conforms best to this description?

He is irresponsible and impulsive, perhaps expressing much feeling and emotion but really experiencing very little. He is somewhat superficial, learns little from experience and is unreliable. He tends to resist conforming to rules and regulations, is rebellious against authority and is self-centered and individualistic, causing difficulty in class and likely to get into frequent trouble. For example, this student may:

1. Have a juvenile court record.
2. Be sent to the principal frequently.
3. May refuse to do what he is asked to do.
4. Commit the same offense repeatedly even though verbally acknowledging it is wrong.
5. Be noisy and rowdy in class or study hall.
6. Frequently have unexcused absences.
7. Not complete assignments on time, or at all.

(boy)

1. ____(first choice)

Now list the name of one other boy in your home room to whom this description also applies.

(boy)

2. ____(second choice)

CONFORMIST NOMINATION FORM
EMPLOYED IN THIS INVESTIGATION

. . . .

What boy in your home room conforms best to this description?

He is reliable and responsible. He conforms to rules and regulations, even if he does disagree with them. In these cases, he may attempt to have such rules changed through orderly procedures but he obeys them until they are changed. He is sincere, respects those in positions of authority and has their respect, and although not a docile or overly submissive person, he understands the need for social organization and conscientiously attempts to be responsible member of society. For example this student may:

1. Almost always do what he is asked to do.
2. Practically never repeats an offense.
3. Cause no noise or disorder in class or study hall.
4. Never have unexcused absences.
5. Always complete assignments on time.
6. Rarely be tardy.
7. Be considered warm and friendly by others.

(boy)

1. ____(first choice)

Now list the name of one other boy in your home room to whom this description also applies.

(boy)

2. ____(second choice)

APPENDIX C

CHI-SQUARE VALUES AND CRITICAL RATIOS OF PRELIMINARY TEST ITEMS

TABLE XVII

CHI-SQUARE VALUES RESULTING FROM PRE-TESTING PROCEDURES ON THE 125 FORM A PRELIMINARY TEST ITEMS

Item No.	X^2	Item No.	X^2	Item No.	X^2	Item No.	X^2
1	5.010*	33	7.381*	65	3.528*	97	.088
2	2.199	34	0.000	66	.261	98	.066
3	.065	35	7.806*	67	1.042	99	.282
4	.313	36	6.458*	68	1.088	100	1.557
5	.272	37	5.187*	69	.119	101	1.640
6	.590	38	1.033	70	1.620	102	4.168*
7	1.557	39	.603	71	1.060	103	.603
8	0.000	40	.066	72	.069	104	.066
9	1.348	41	.065	73	1.033	105	2.199
10	.258	42	.583	74	0.000	106	.272
11	1.620	43	.648	75	2.447	107	2.325
12	.258	44	0.000	76	1.088	108	.583
13	1.060	45	.265	77	.590	109	2.657
14	1.088	46	.065	78	.581	110	.791
15	.603	47	1.042	79	.265	111	1.613
16	0.000	48	2.447	80	.313	112	.065
17	.265	49	0.000	81	.065	113	3.215*
18	3.175*	50	3.504*	82	1.676	114	0.000
19	7.939*	51	.272	83	0.000	115	.076
20	.622	52	2.818*	84	.067	116	1.348
21	0.000	53	.272	85	.603	117	0.000
22	1.620	54	.072	86	1.728	118	1.348
23	.295	55	1.620	87	.265	119	.590
24	0.000	56	.088	88	1.088	120	5.226*
25	.088	57	1.253	89	.729	121	.622
26	1.060	58	.272	90	.265	122	0.000
27	.076	59	8.370*	91	4.133*	123	2.536
28	.066	60	.258	92	.072	124	0.000
29	.581	61	10.949*	93	.066	125	.282
30	0.000	62	0.000	94	.258		
31	2.657	63	.088	95	1.253		
32	.261	64	1.800	96	5.248*		

*Items selected for inclusion into Humor Preference Inventory.

TABLE XVIII

CRITICAL RATIOS RESULTING FROM PRE-TESTING PROCEDURES ON THE 125 FORM A PRELIMINARY TEST ITEMS

Item No.	CR	Item No.	CR	Item No.	CR	Item No.	CR
1	2.238*	33	2.717*	65	1.878*	97	.297
2	1.483	34	0.000	66	.509	98	.256
3	.254	35	2.794*	67	1.021	99	.531
4	.560	36	2.541*	68	1.043	100	1.248
5	.521	37	2.277*	69	.345	101	1.280
6	.767	38	1.016	70	1.272	102	2.042*
7	1.247	39	.777	71	1.029	103	.777
8	0.000	40	.255	72	.262	104	.255
9	1.161	41	.254	73	1.016	105	1.482
10	.507	42	.763	74	0.000	106	.520
11	1.272	43	.805	75	1.564	107	1.524
12	.507	44	0.000	76	1.043	108	.764
13	1.028	45	.515	77	.768	109	1.629
14	1.043	46	.254	78	.762	110	.889
15	.777	47	1.021	79	.515	111	1.269
16	0.000	48	1.563	80	.560	112	.254
17	.514	49	0.000	81	.254	113	1.792*
18	1.782*	50	1.872*	82	1.294	114	0.000
19	2.817*	51	.521	83	0.000	115	.275
20	.788	52	1.679*	84	.258	116	1.160
21	0.000	53	.521	85	.777	117	0.000
22	1.273	54	.268	86	1.315	118	1.160
23	.542	55	1.272	87	.515	119	.767
24	0.000	56	.296	88	1.043	120	2.286*
25	.296	57	1.118	89	.854	121	.788
26	1.028	58	.520	90	.514	122	0.000
27	.275	59	2.893*	91	2.032*	123	1.592
28	.255	60	.507	92	.268	124	0.000
29	.762	61	3.309*	93	.256	125	.530
30	0.000	62	0.000	94	.508		
31	1.629	63	.297	95	1.118		
32	.509	64	1.341	96	2.290*		

*Items selected for inclusion into Humor Preference Inventory.

TABLE XIX

CHI-SQUARE VALUES RESULTING FROM PRE-TESTING PROCEDURES ON THE 125 FORM B PRELIMINARY TEST ITEMS

Item No.	X^2	Item No.	X^2	Item No.	X^2	Item No.	X^2
1	.268	33	1.658	65	.009	97	2.500
2	1.571	34	.819	66	.023	98	2.071
3	9.191*	35	.557	67	2.400	99	.287
4	.659	36	1.111	68	2.035	100	3.300*
5	2.874*	37	1.684	69	.827	101	.069
6	0.000	38	6.111*	70	.414	102	.425
7	.082	39	.175	71	3.799*	103	2.122
8	3.590*	40	.192	72	2.122	104	.150
9	0.000	41	2.296	73	.005	105	1.763
10	.111	42	2.853*	74	2.199	106	.167
11	1.086	43	4.163*	75	.606	107	2.425
12	3.799*	44	.635	76	.003	108	.408
13	.060	45	5.554*	77	.461	109	.145
14	16.321*	46	1.135	78	.871	110	2.052
15	.069	47	.011	79	.368	111	3.535*
16	3.851*	48	.050	80	1.515	112	4.051*
17	.003	49	3.003*	81	.005	113	2.853*
18	.192	50	.233	82	1.356	114	.417
19	1.410	51	.407	83	.871	115	.427
20	6.466*	52	.010	84	.077	116	.938
21	8.148*	53	.508	85	2.042	117	.067
22	4.002*	54	1.667	86	2.850*	118	.036
23	1.515	55	.141	87	5.261*	119	.158
24	.006	56	2.198	88	.508	120	.268
25	.042	57	0.000	89	.814	121	.167
26	2.311	58	.884	90	2.952*	122	.082
27	1.482	59	5.430*	91	1.071	123	.073
28	14.752*	60	.819	92	.827	124	0.000
29	1.699	61	.162	93	2.014	125	.077
30	.606	62	.027	94	8.148*		
31	.010	63	2.850*	95	5.455*		
32	.517	64	1.356	96	.647		

*Items selected for inclusion into Humor Preference Inventory.

APPENDIX D

THE HUMOR PREFERENCE INVENTORY, THE ANSWER SHEET USED AND A LIST OF THE SOURCES OF THE CARTOONS

HUMOR PREERENCE INVENTORY

(The cartoons in this inventory were used with the special permission of the respective publishers involved)

SCALE C

HUMOR PREFERENCE INVENTORY

You are about to be involved in a research project of considerable importance. The following inventory is used to obtain a record of individual preferences for humor. Each page consists of two cartoons. Look at and read both cartoon number 1 and cartoon number 2 and then decide which of the two seems more humorous to you.

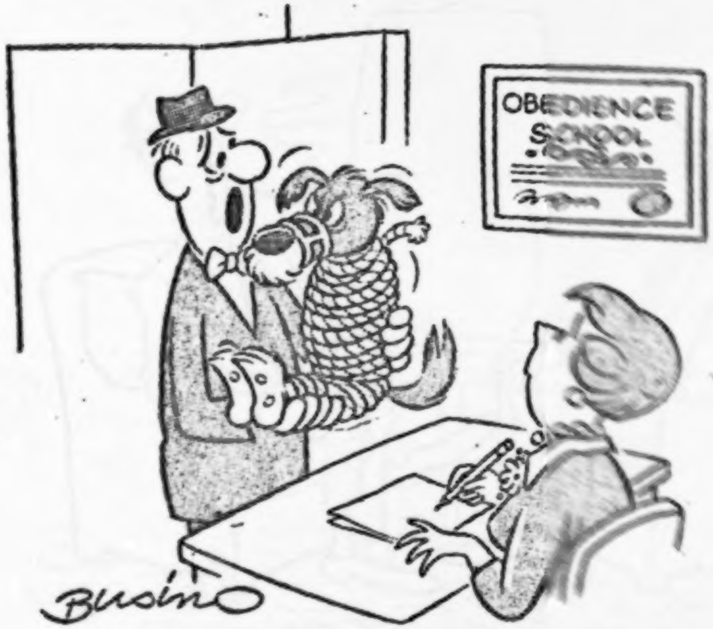
You are to mark your answers on the answer sheet supplied to you. If, for example, you feel cartoon 2 is the funnier, you should blacken between the parallel lines headed 2. Conversely, if cartoon 1 seems the more humorous to you, you should blacken the space headed 1. Make your marks heavy and black. Be sure to use a #2 lead pencil or softer.

Check from time to time to be sure that the number of the page in the upper left-hand corner agrees with the item number on the answer sheet. Erase completely any answer you wish to change. Do not make any marks on the booklet.

Remember, there are no right or wrong answers. An answer is "right" if it is truly your preference. The results will be kept strictly confidential.

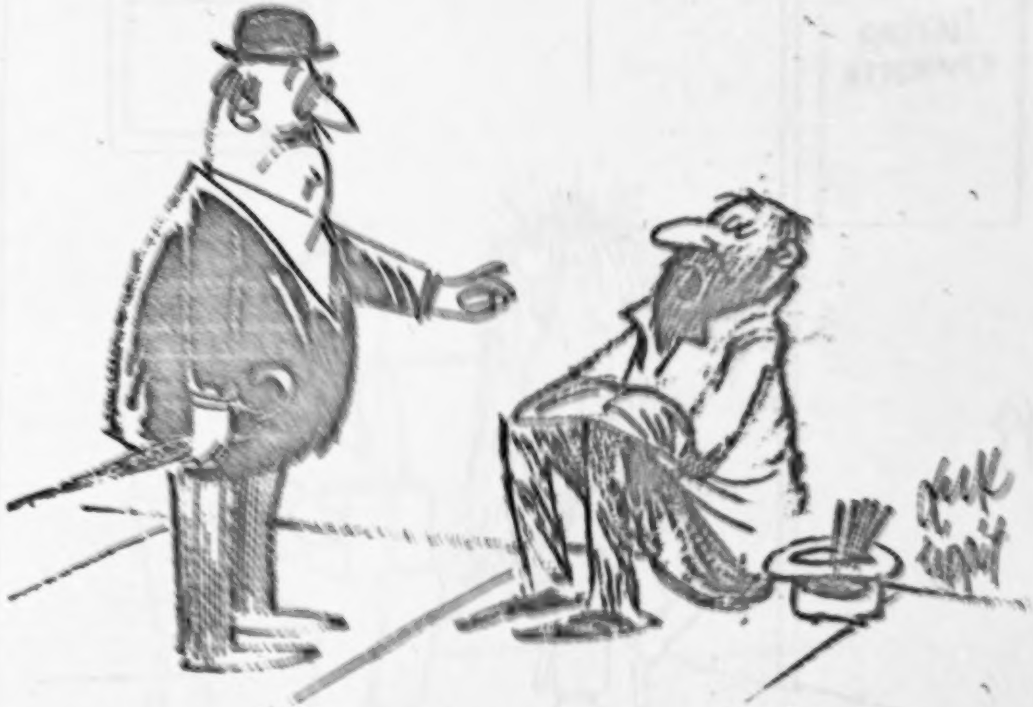
NOW PROCEED WITH THE INVENTORY. ANSWER EVERY ITEM.

1


OBEDIENCE SCHOOL
Busino

"I'd like to enroll a very difficult dog."

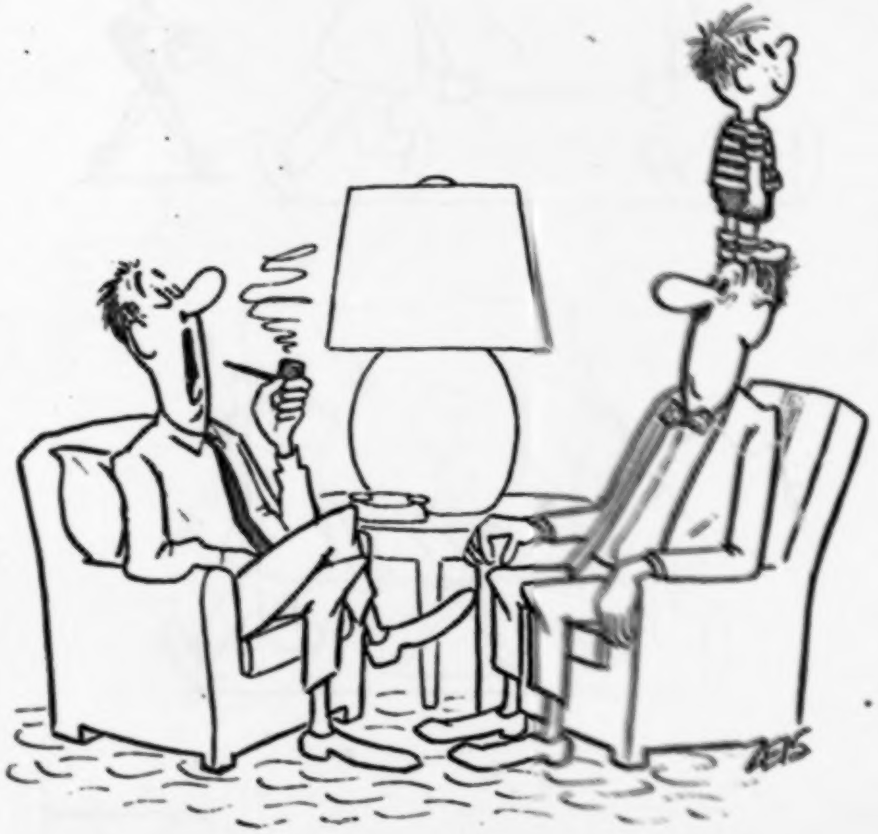
1



"Sorry, Mac, I haven't opened up yet."

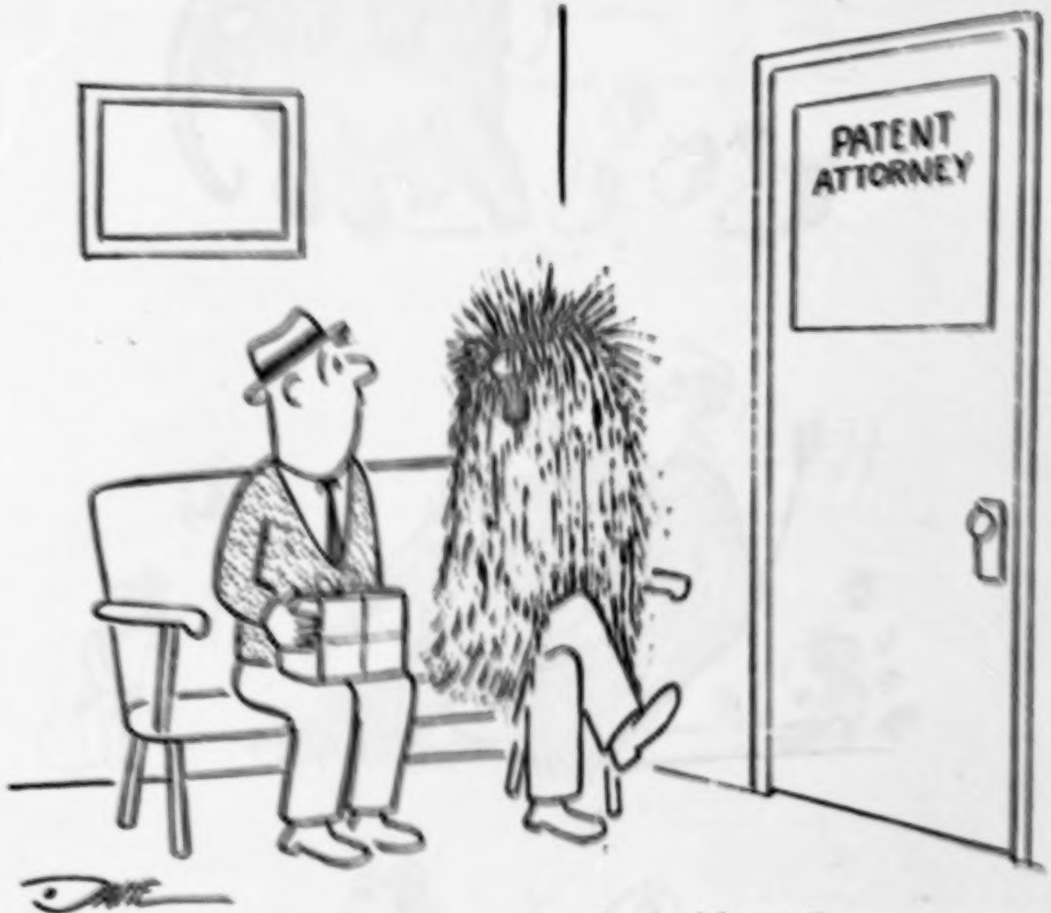
2

2



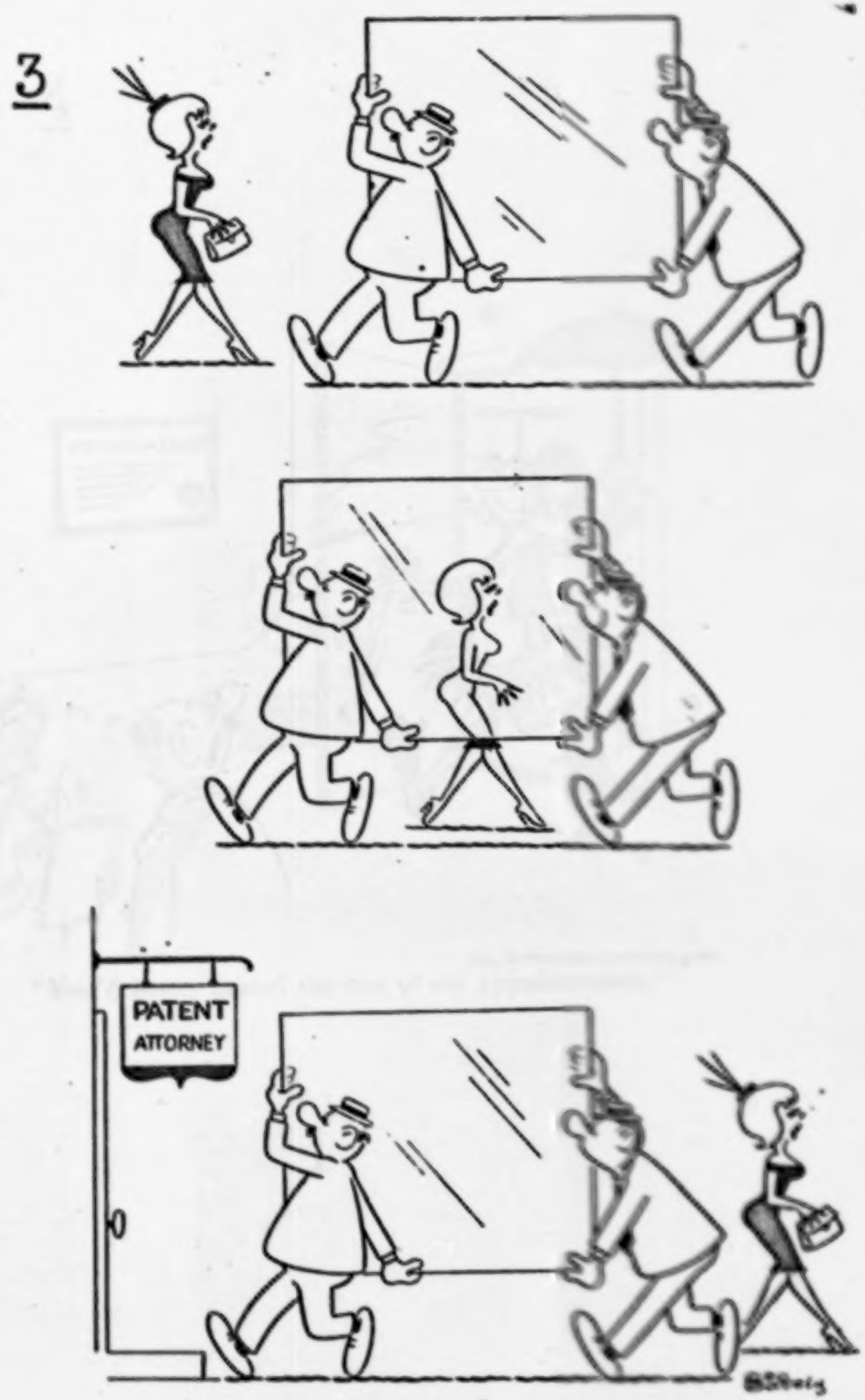
"He's at the climbing age."

1

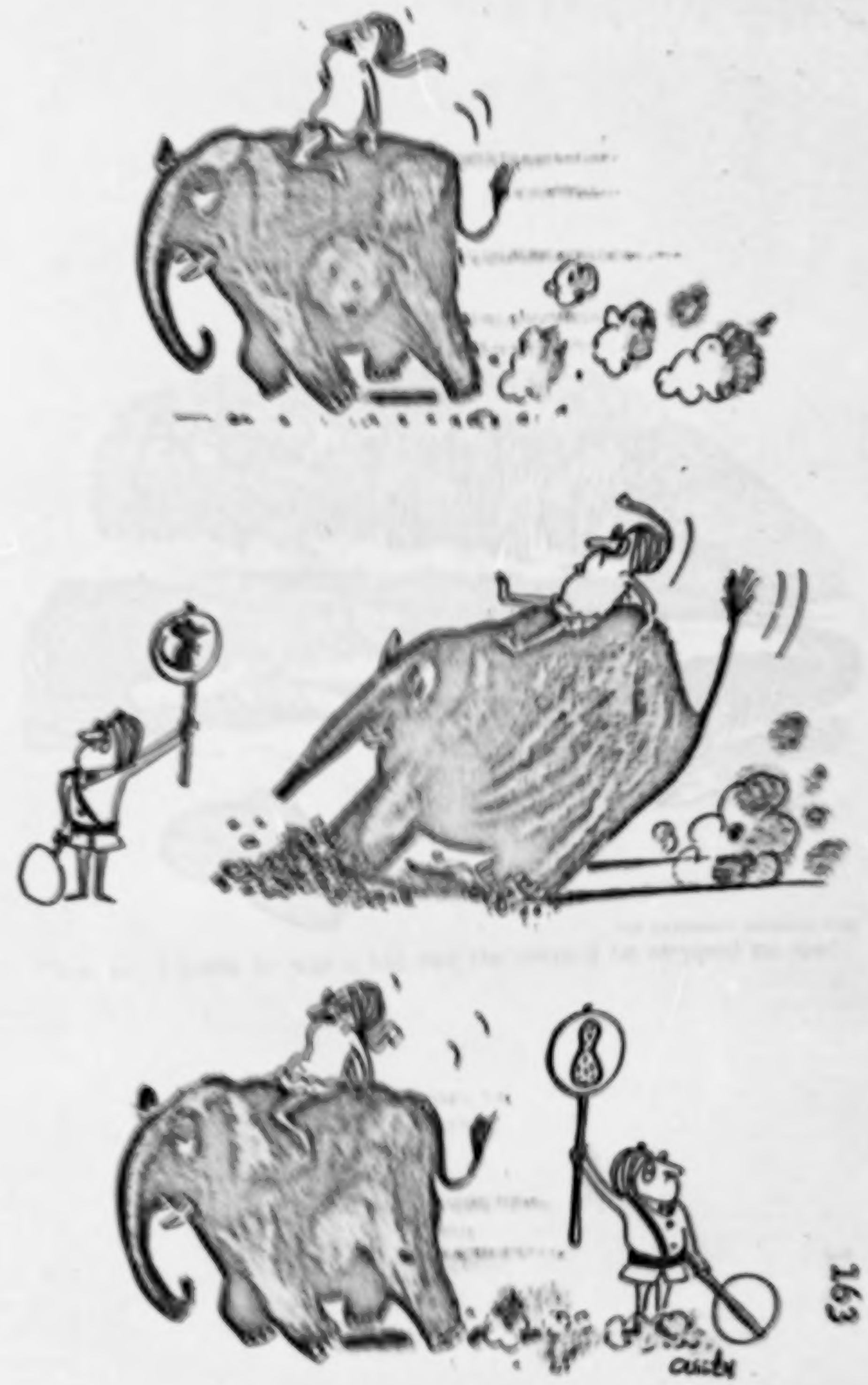

PATENT ATTORNEY

"I've invented a cure for baldness."

2

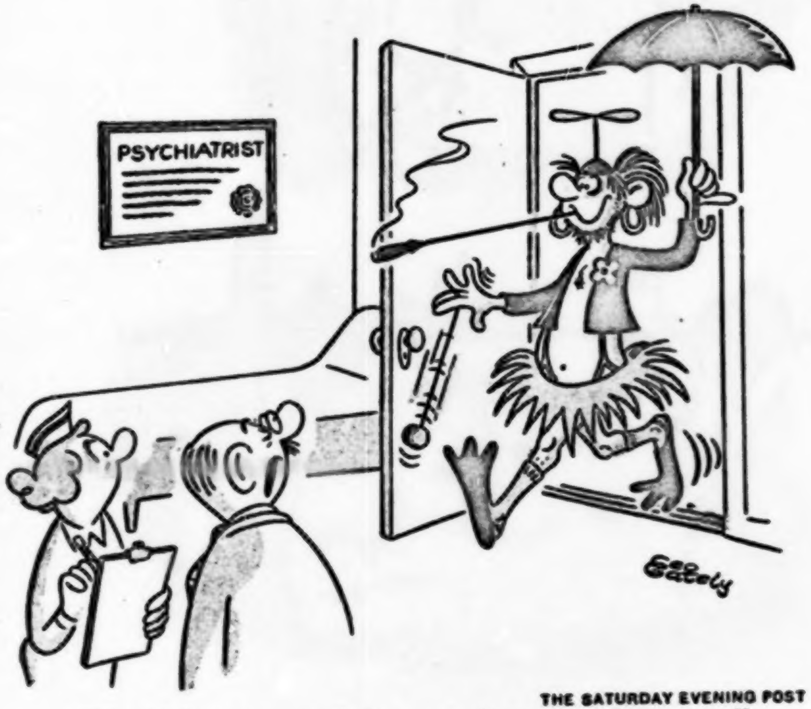

3
PATENT ATTORNEY
BSBerg

1



2

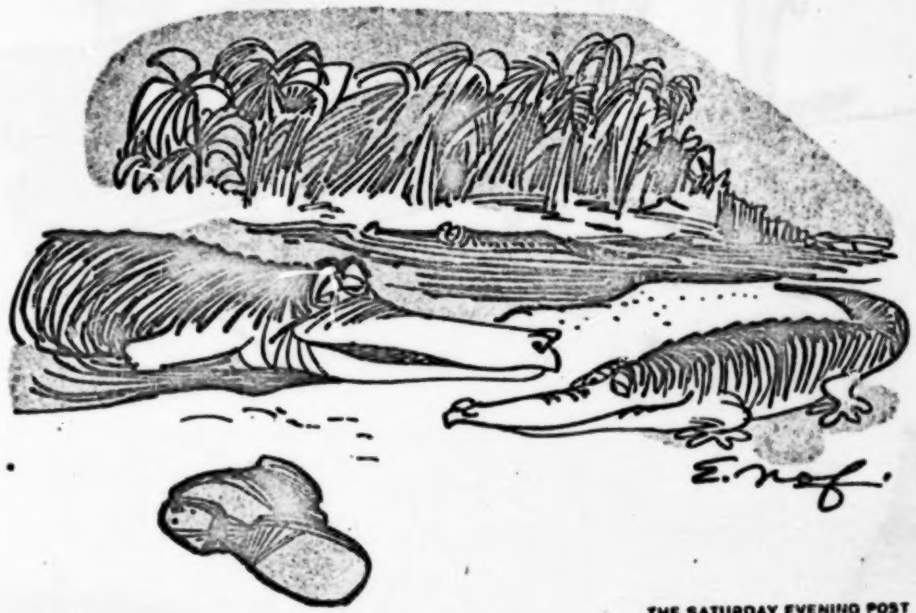
4



THE SATURDAY EVENING POST

"You'd better cancel the rest of my appointments."

1

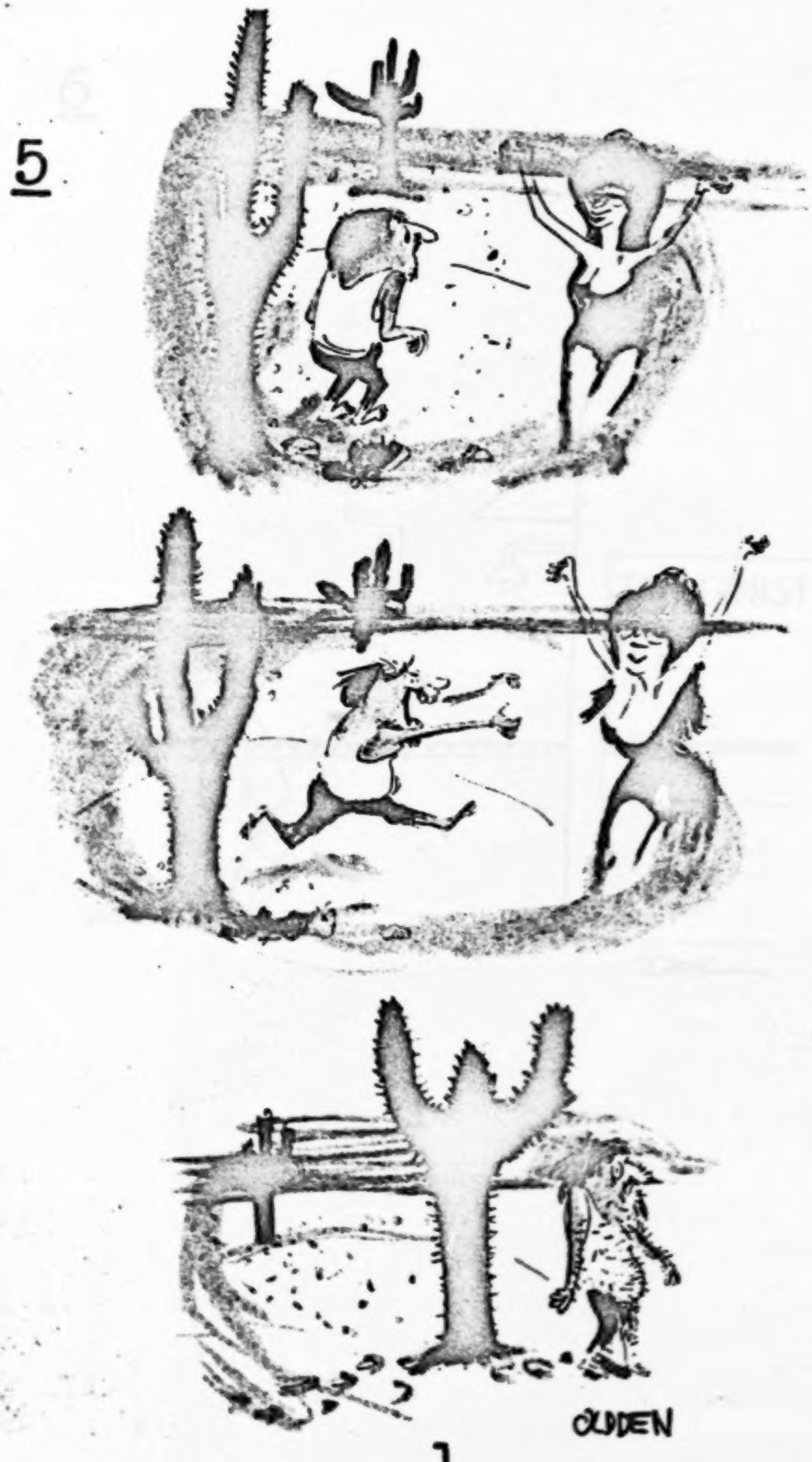


THE SATURDAY EVENING POST

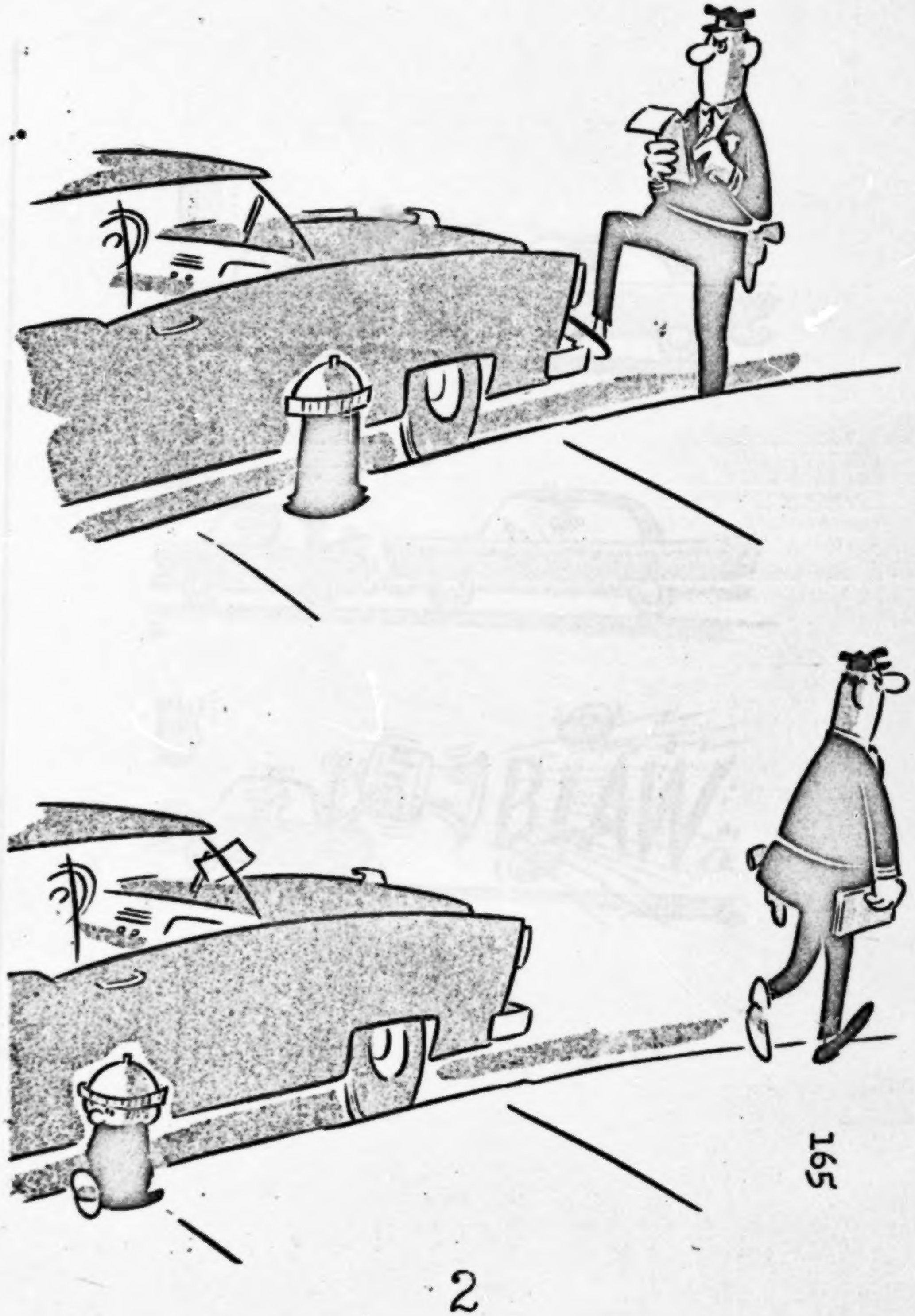
"Yes, sir, I knew he was a big one the second he stepped on me!"

2

5

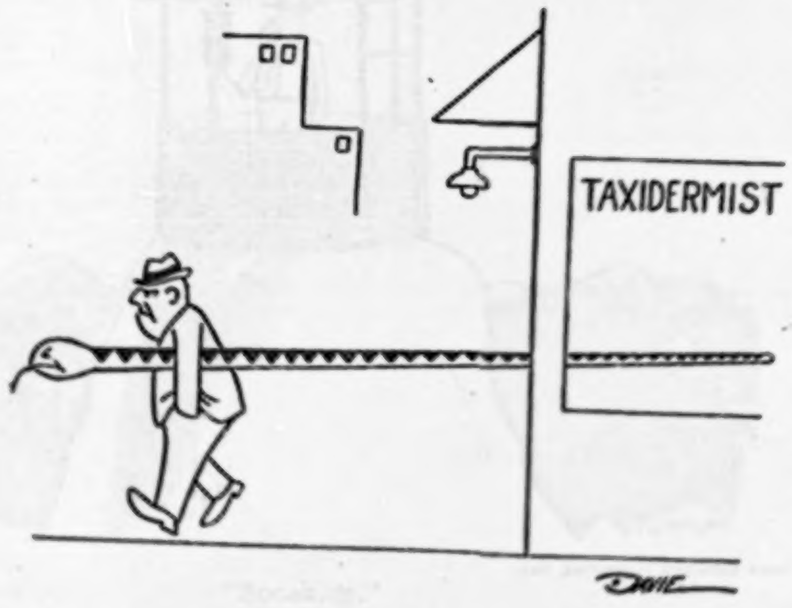


1

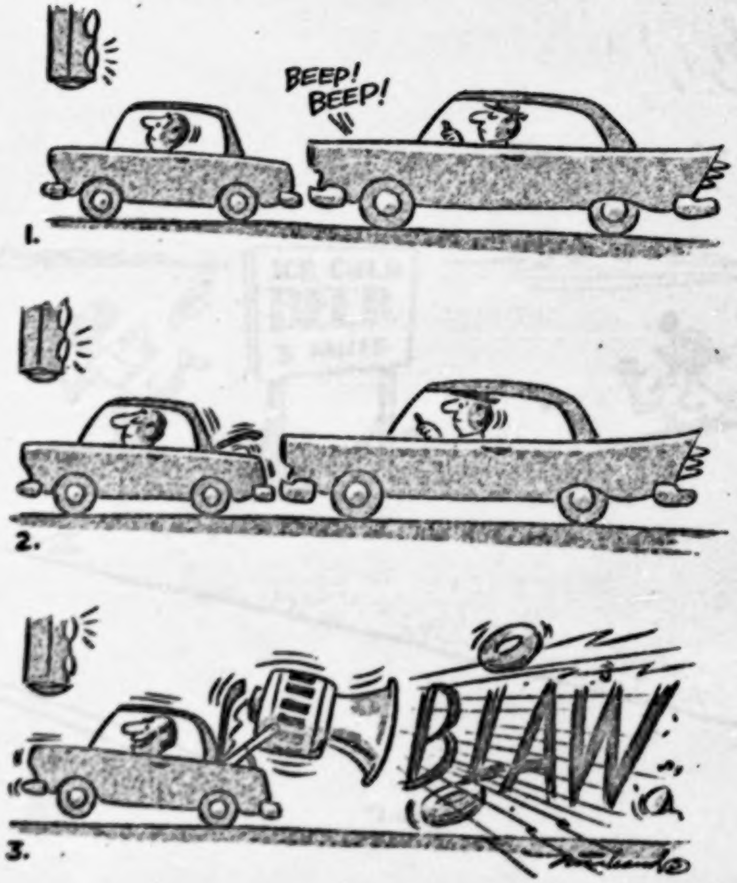


2

6

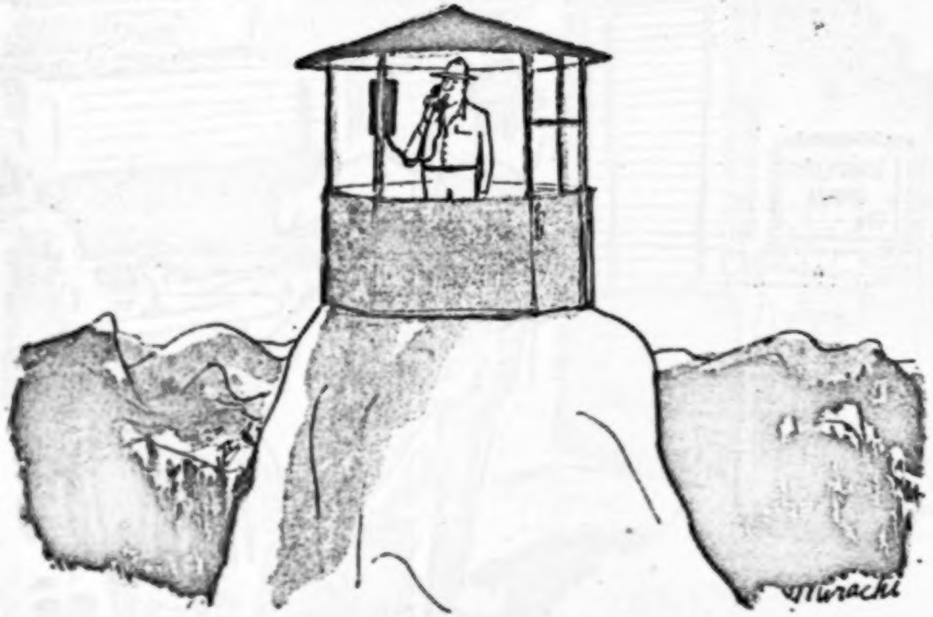

TAXIDERMIST

1


BEEP!
BEEP!
1.
2.
BLAW
3.

2

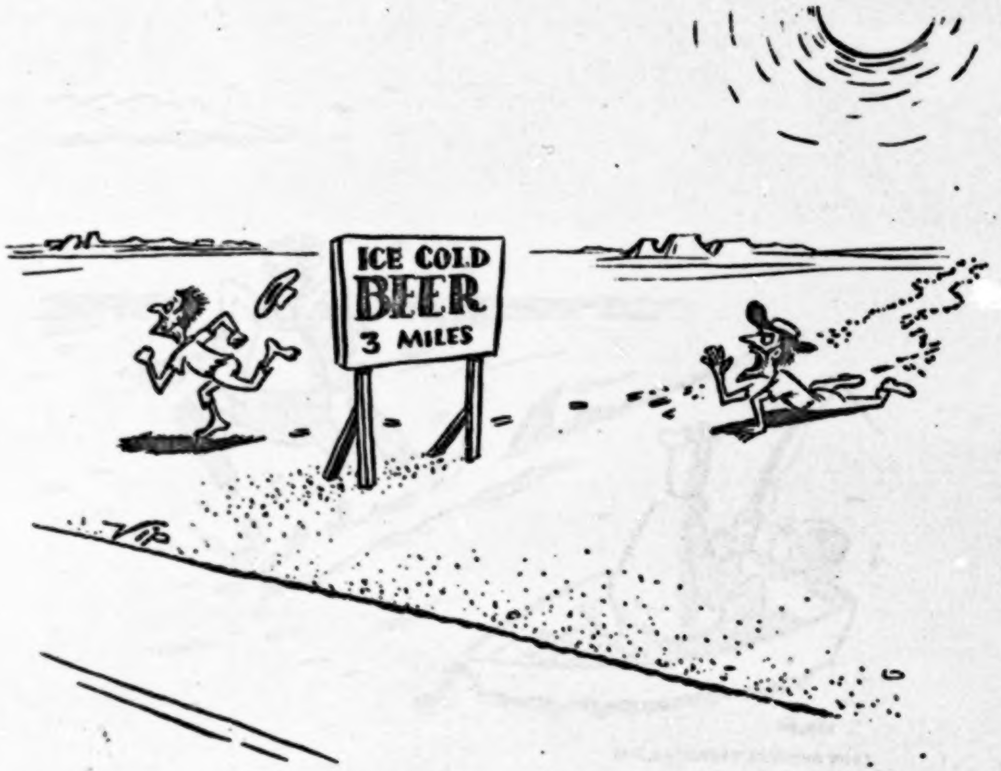
7



THE SATURDAY EVENING POST

"Speaking."

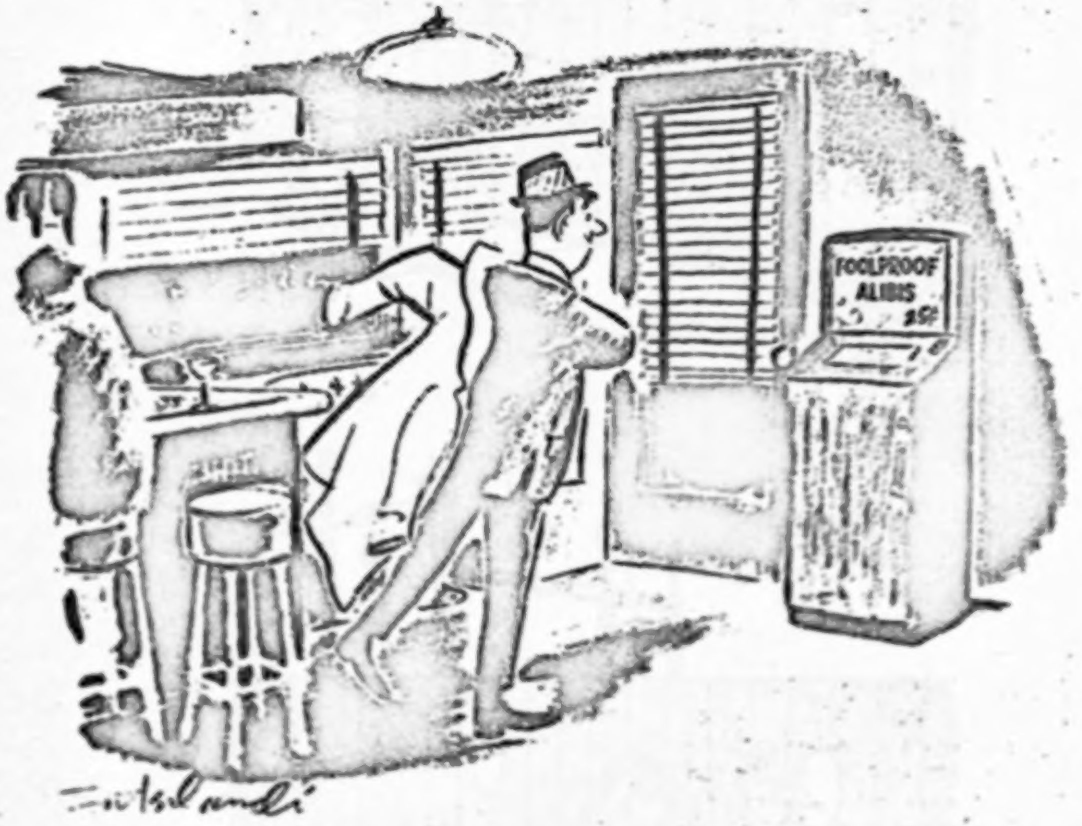
1


ICE COLD
BEER
3 MILES
Vip

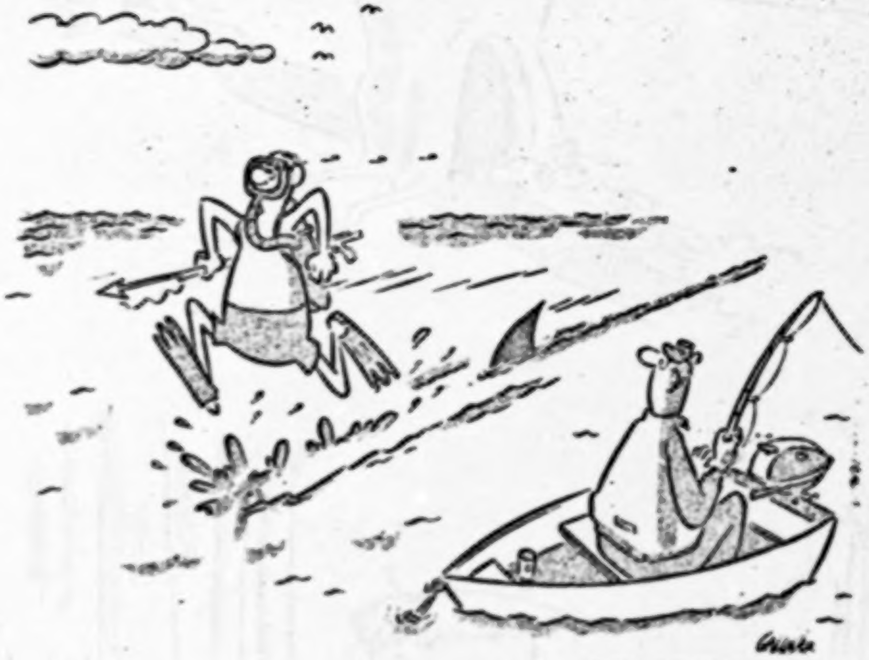
"Lush!"

2

8

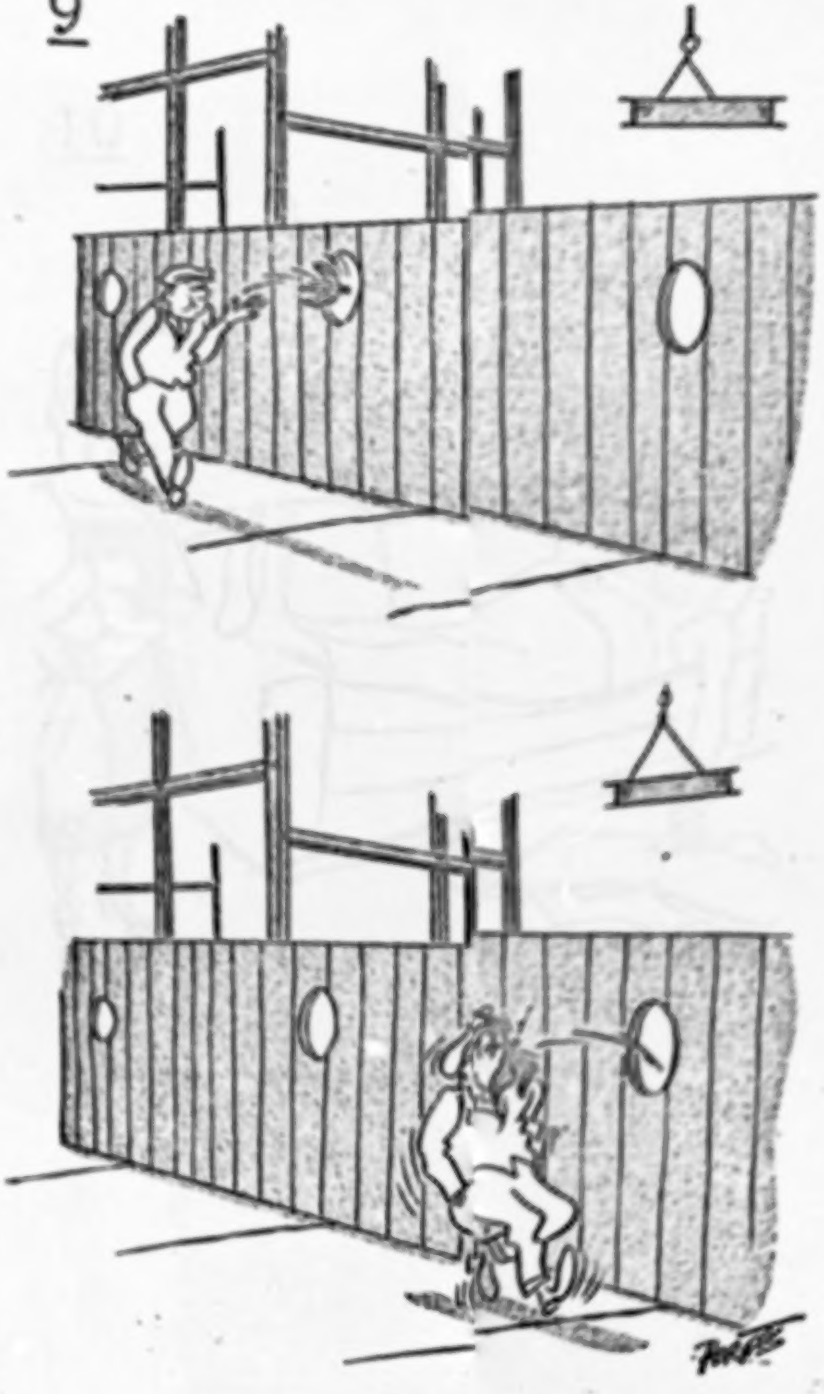

FOOLPROOF ALIBIS 25¢

1

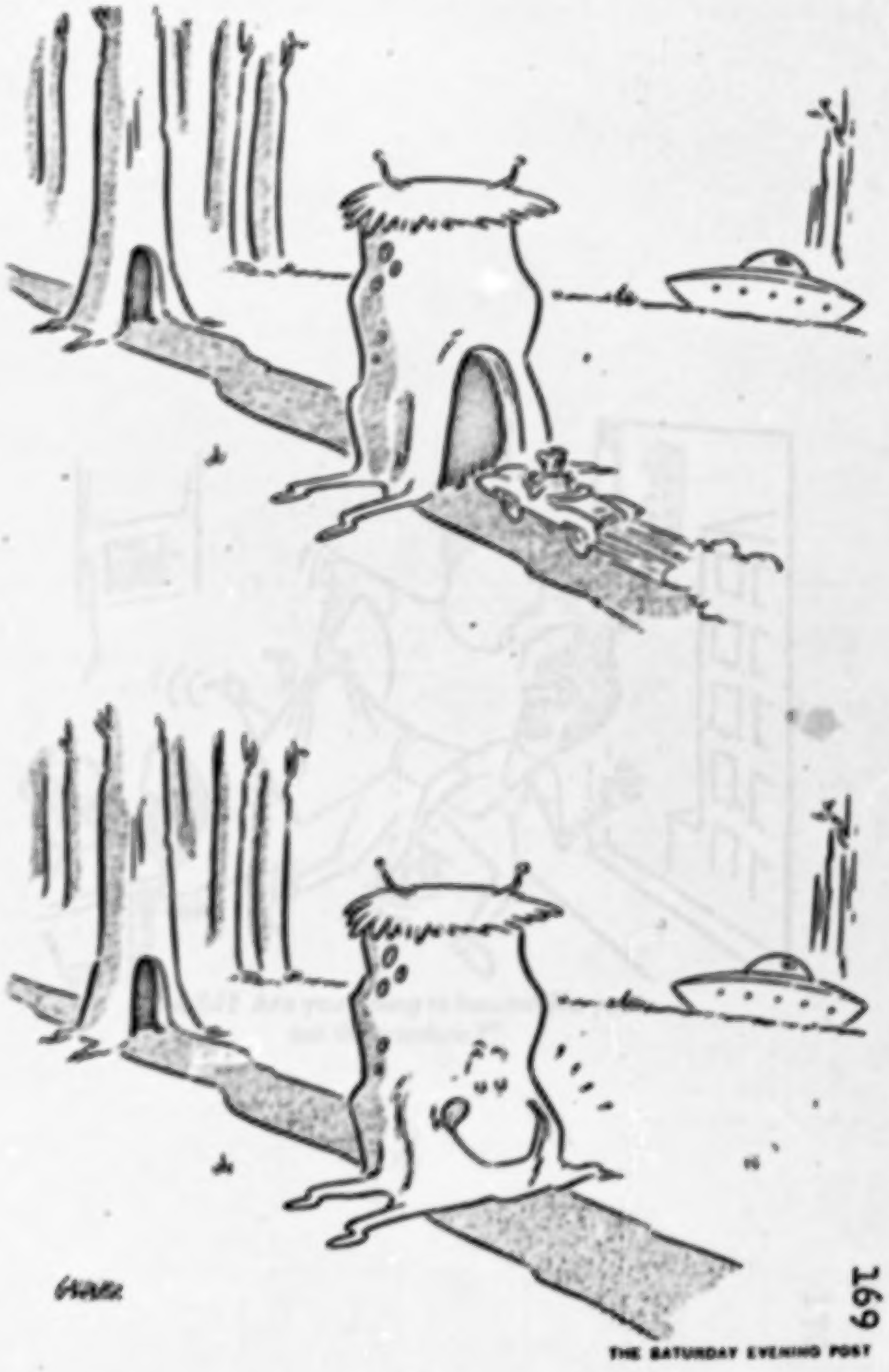

THE SATURDAY EVENING POST

2

9



1

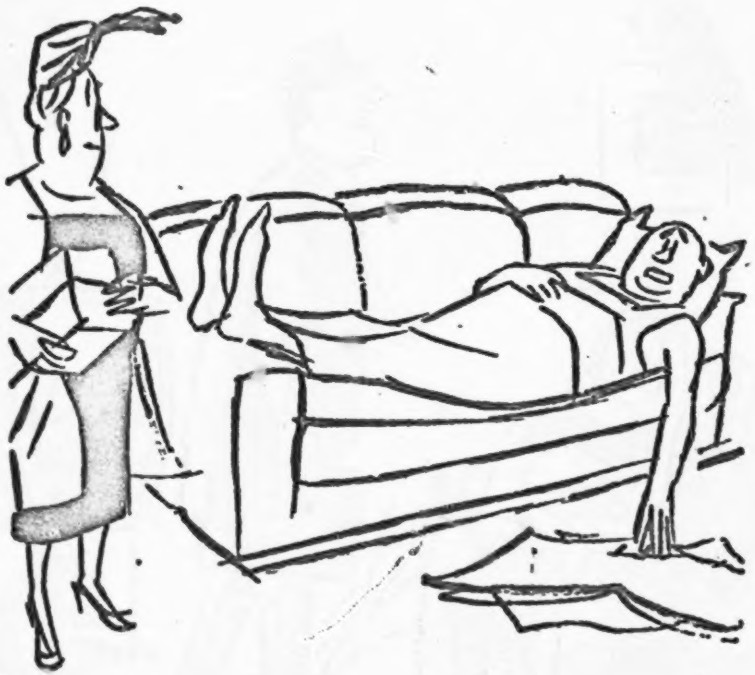


169

THE SATURDAY EVENING POST

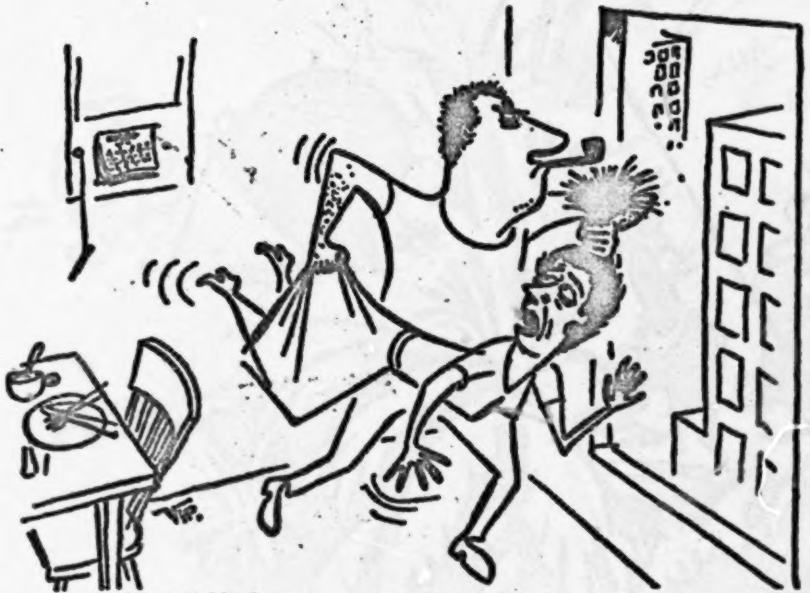
2

10



"Did you remember to get my tranquilizing pills?"

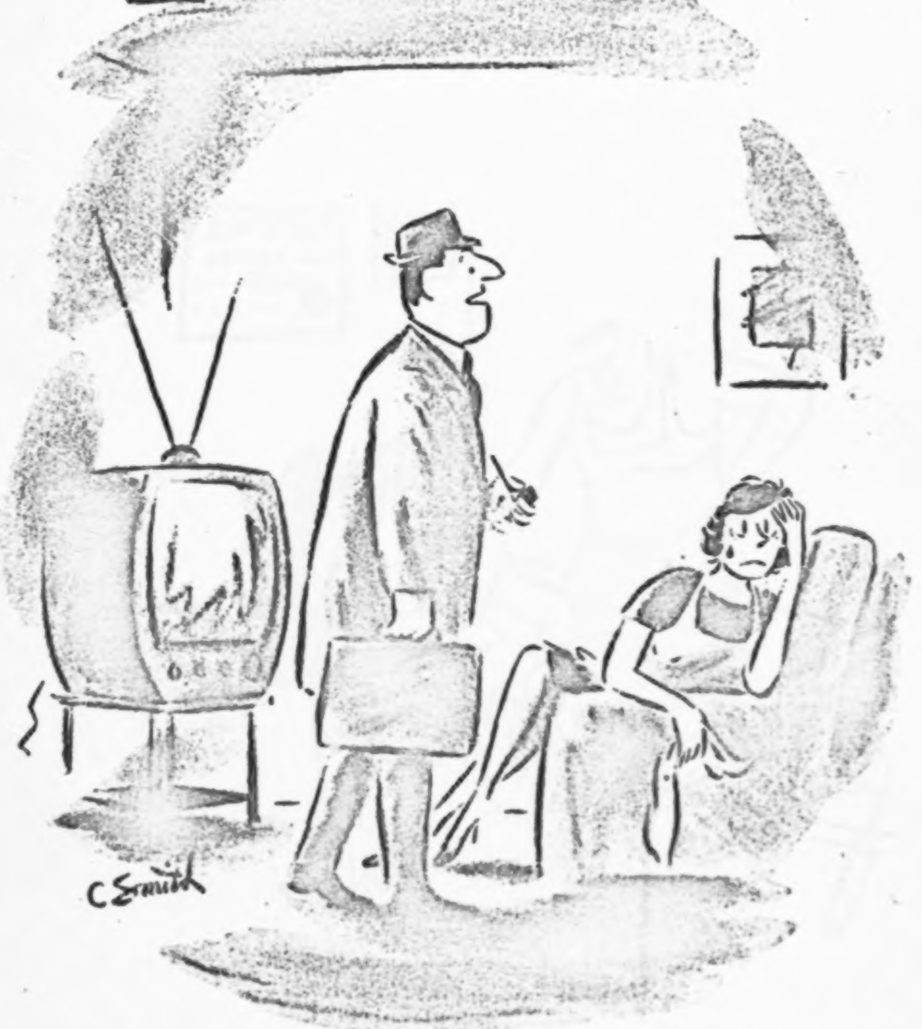
1.



"But Ed! Are you going to toss twelve years out the window?"

2

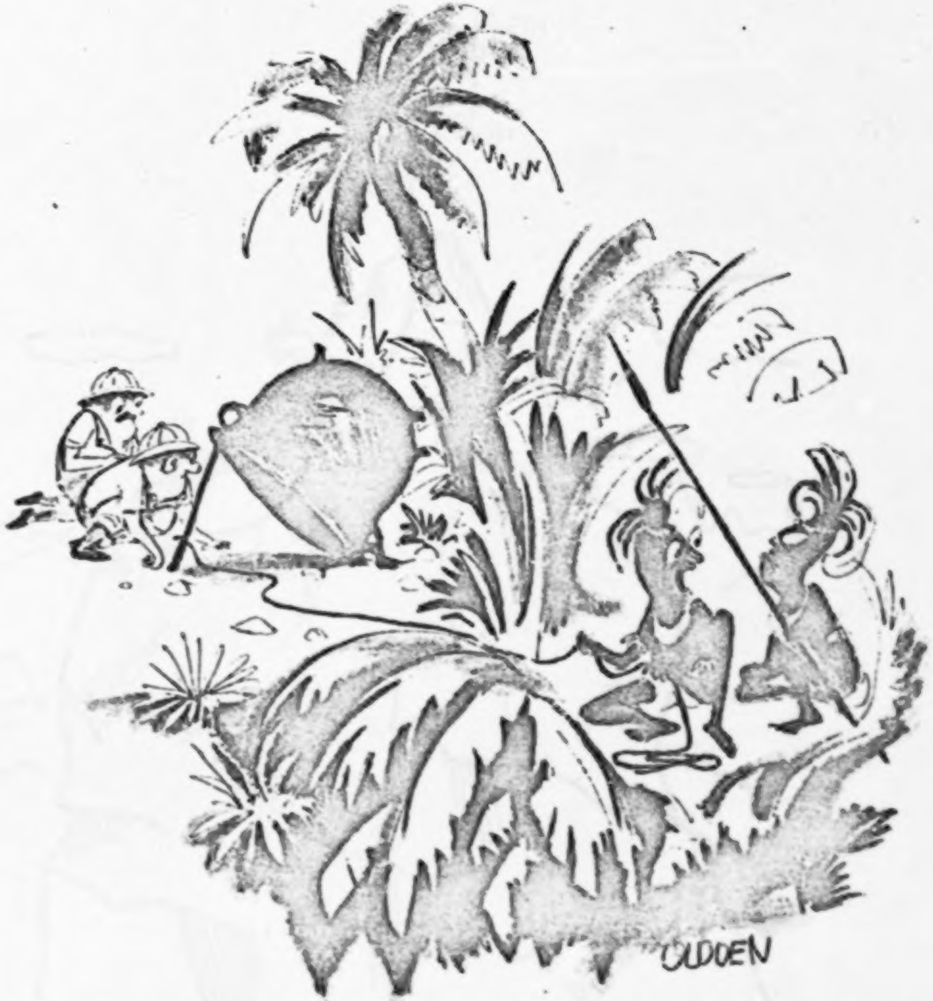
11



THE SATURDAY EVENING POST

"All right, Barbara, whom did you identify with today?"

1

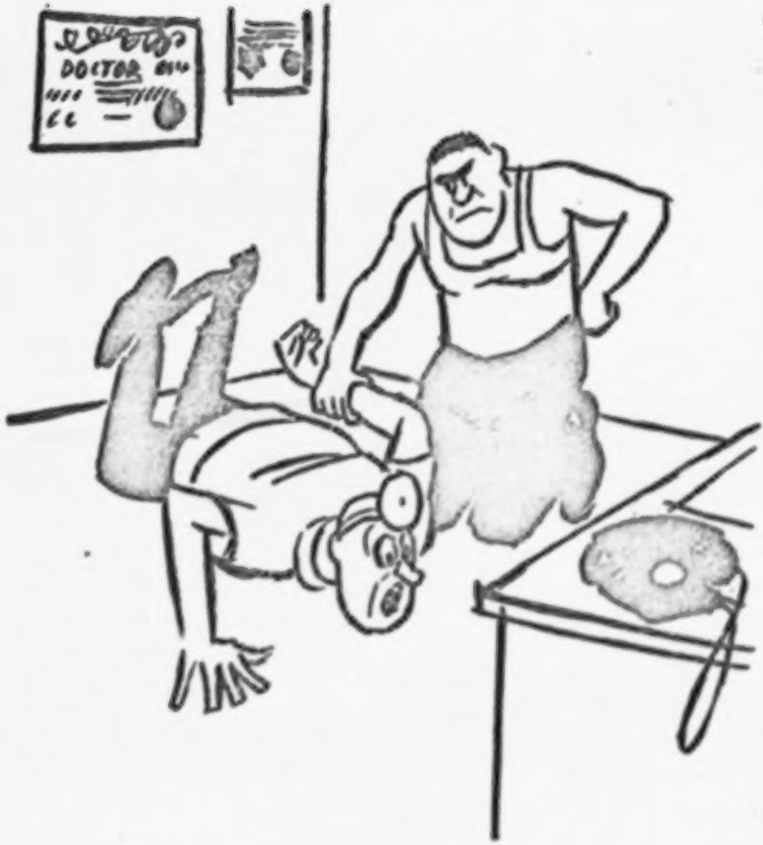


THE SATURDAY EVENING POST

"Say! This is going to be easier than I thought."

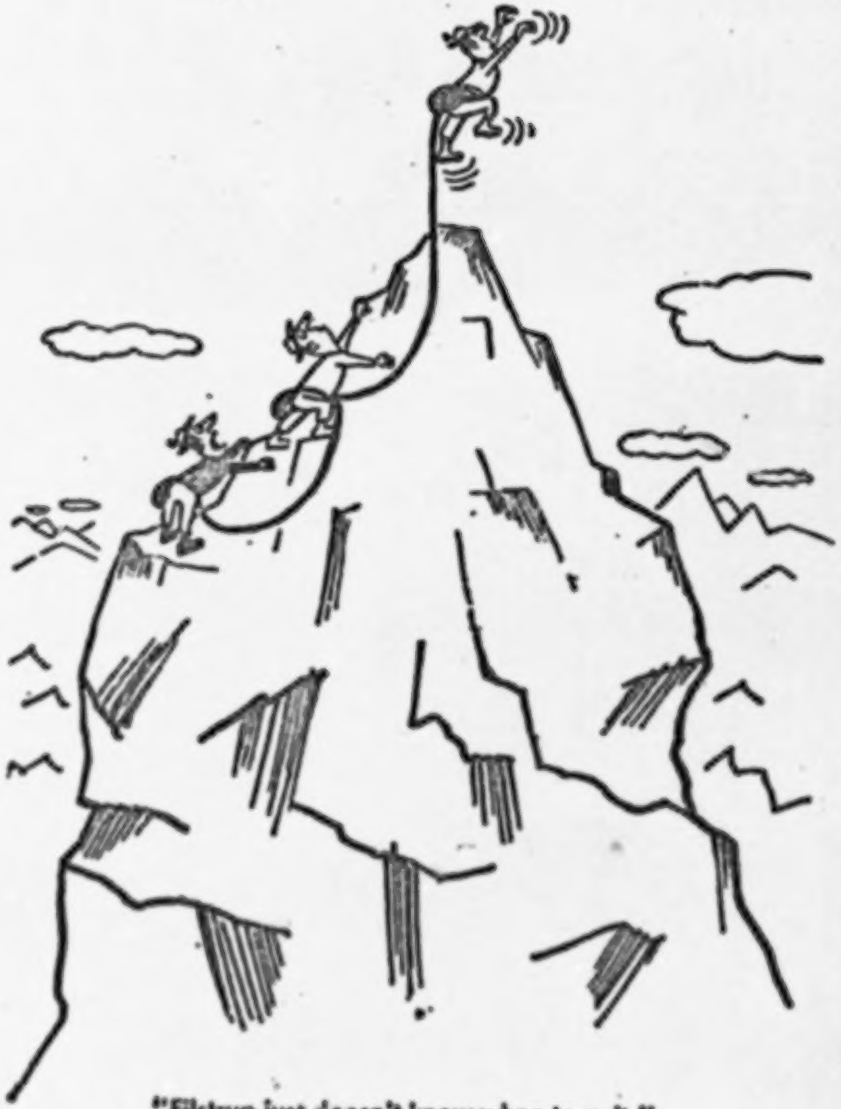
2

12



"Okay, I was wrong! You are in excellent condition!"

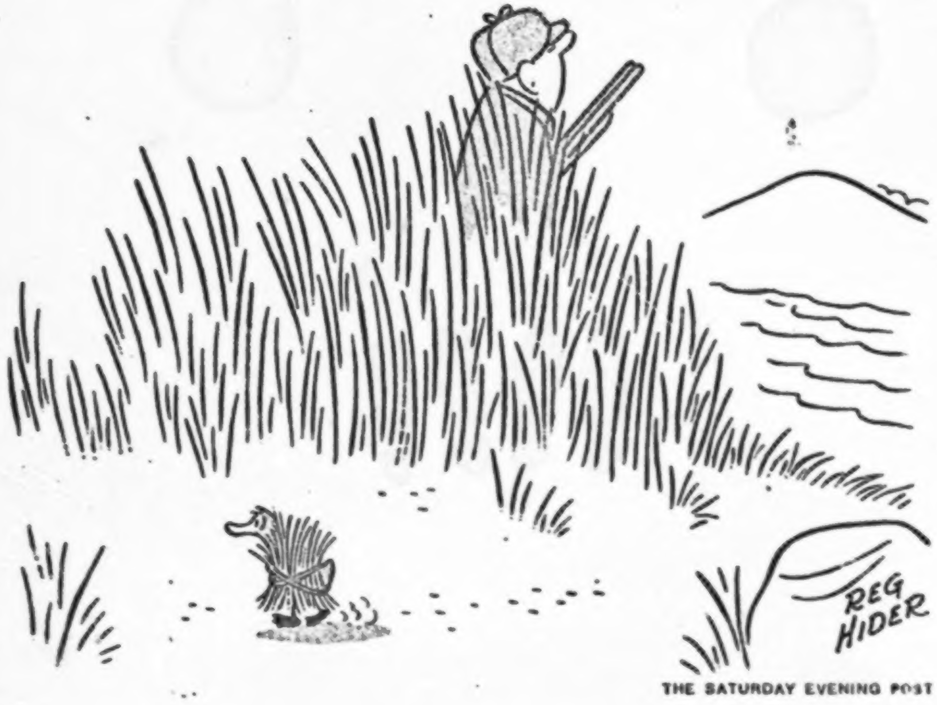
1



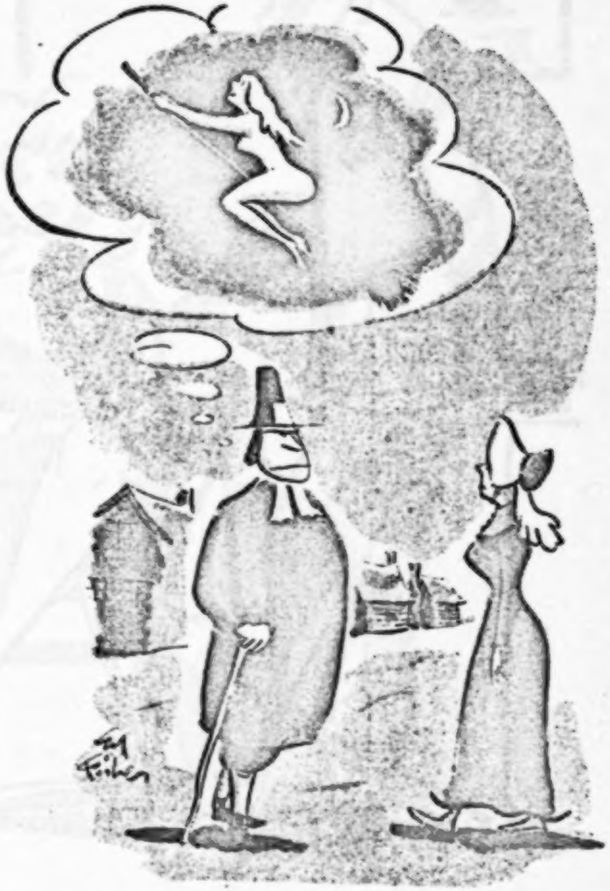
"Filstrup just doesn't know when to quit."

2

13

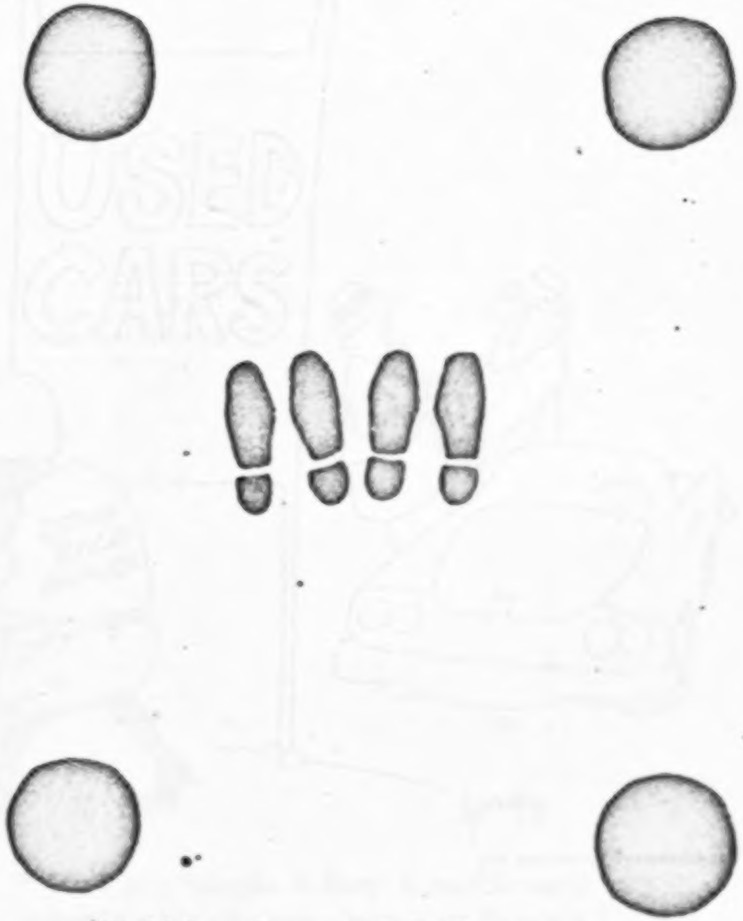

REG HIDER
THE SATURDAY EVENING POST

1



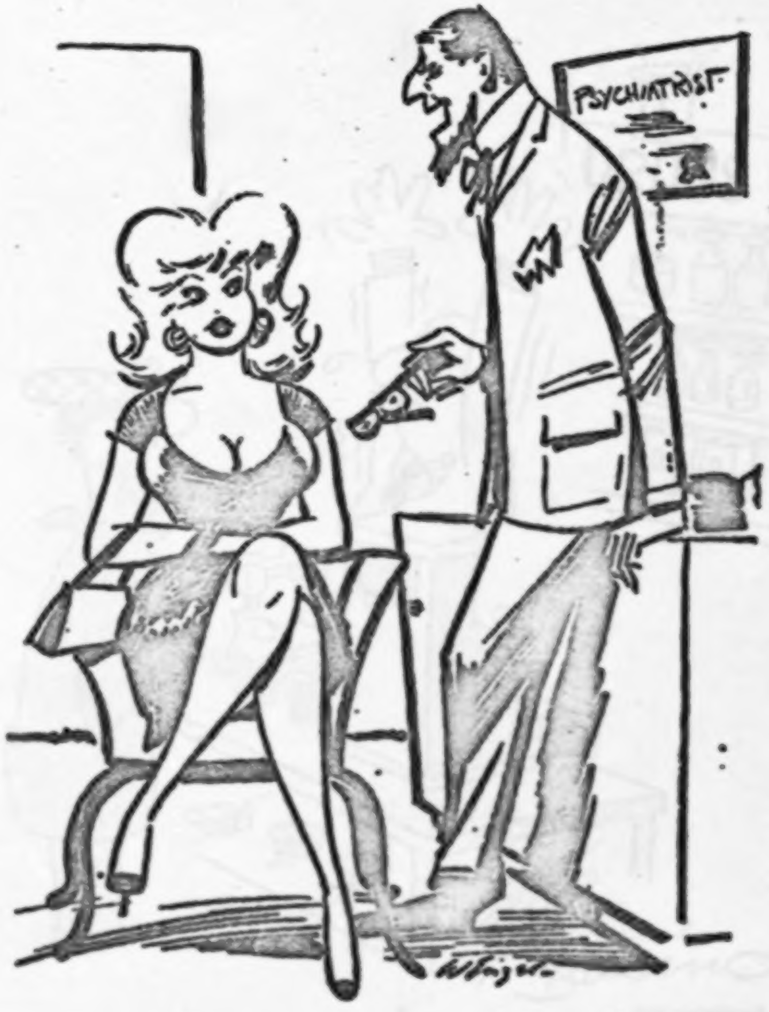
2

14



"I think we better call off this elephant hunt—it seems to be getting dark." BILL SHELLY

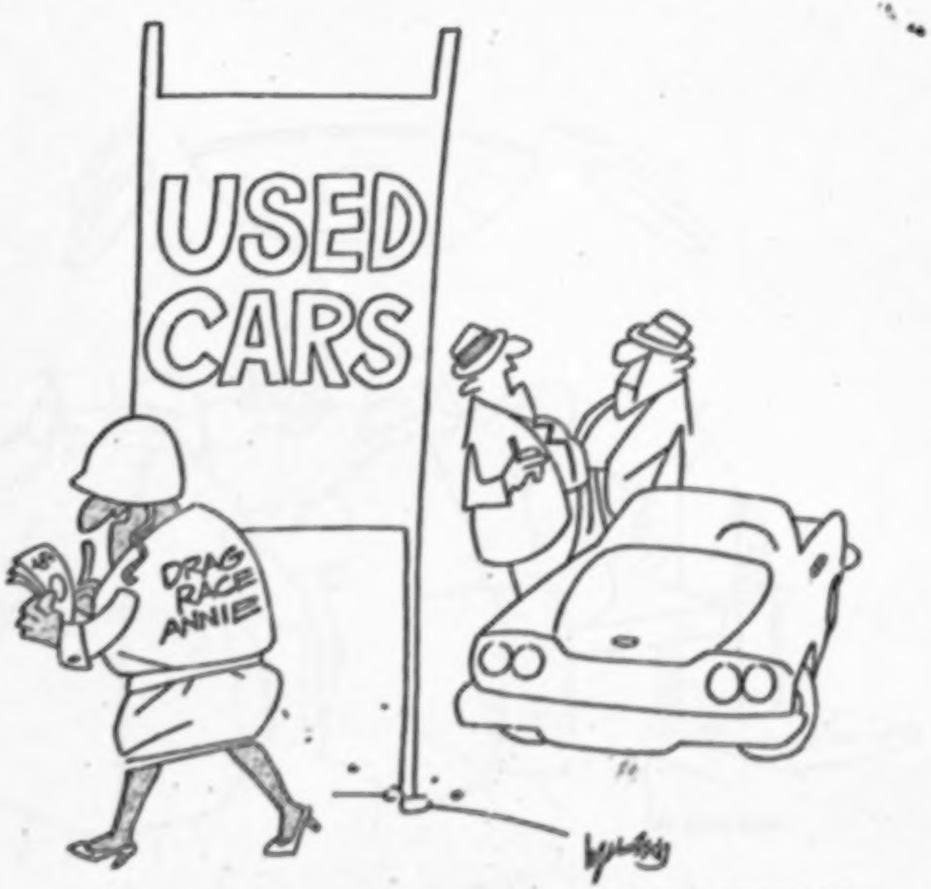
1



"This organization I want you to join is like Alcoholics Anonymous—only it's for girls like you . . ."

2

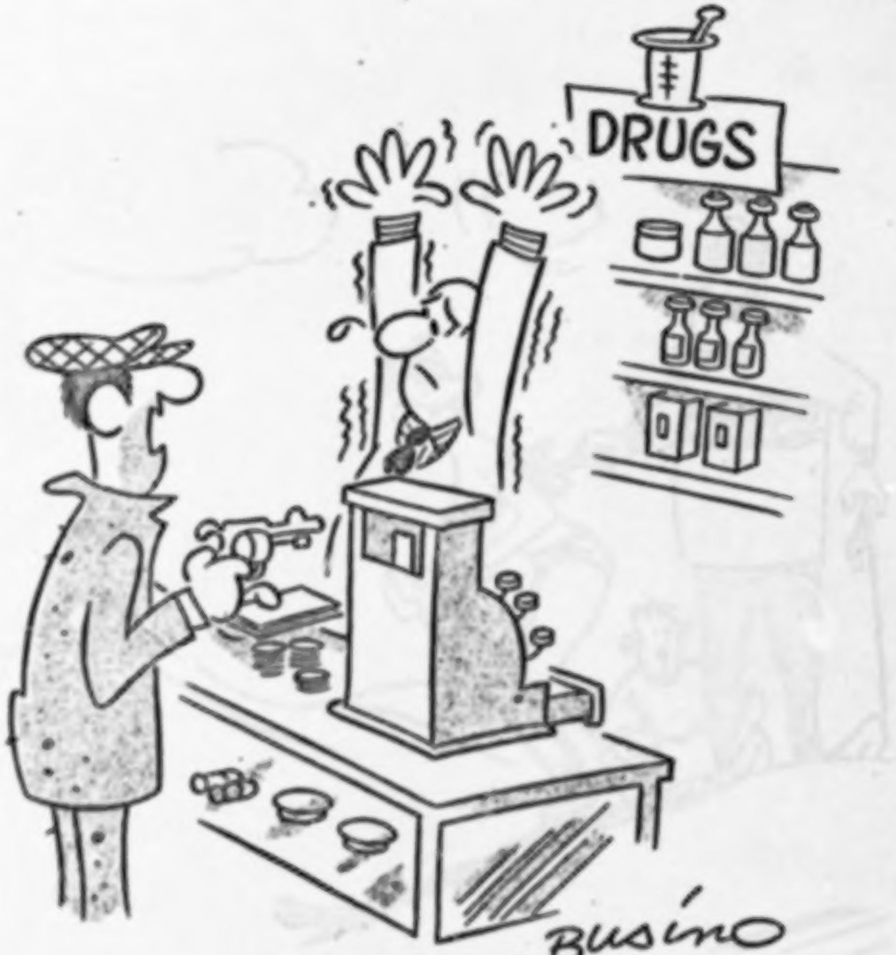
15


USED CARS
DRAG RACE ANNIE

THE SATURDAY EVENING POST

". . . I just bought it from a middle-aged schoolteacher who only drove it on Sundays."

1

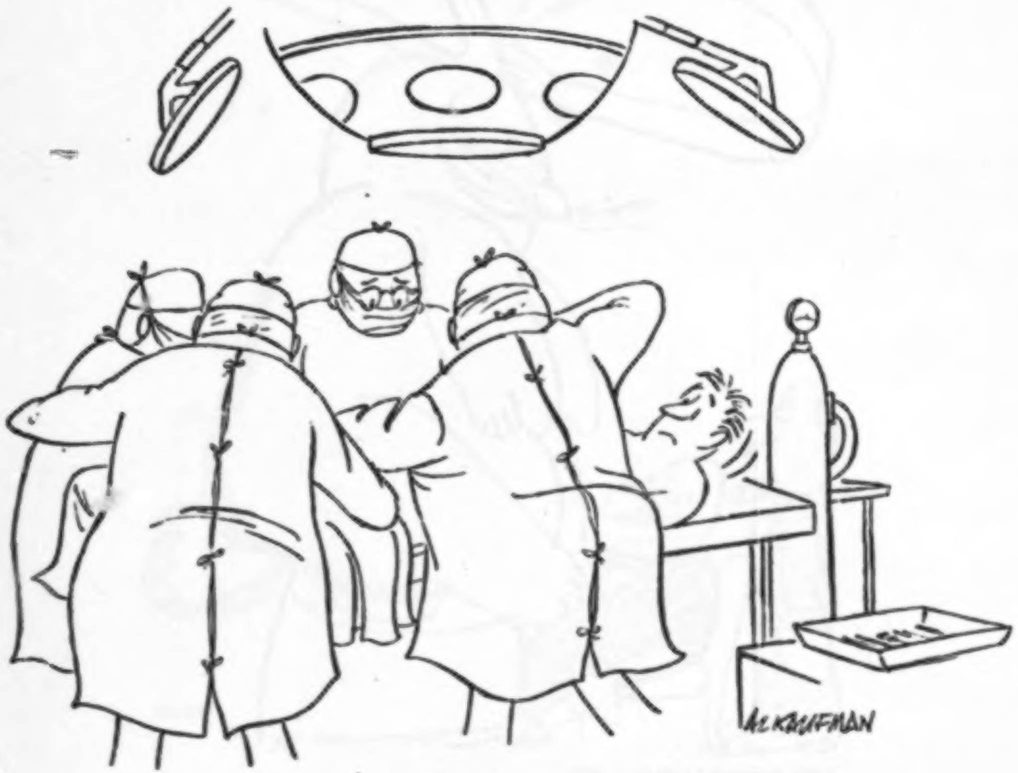


THE SATURDAY EVENING POST

". . . also give me some calamine lotion for an itchy trigger finger."

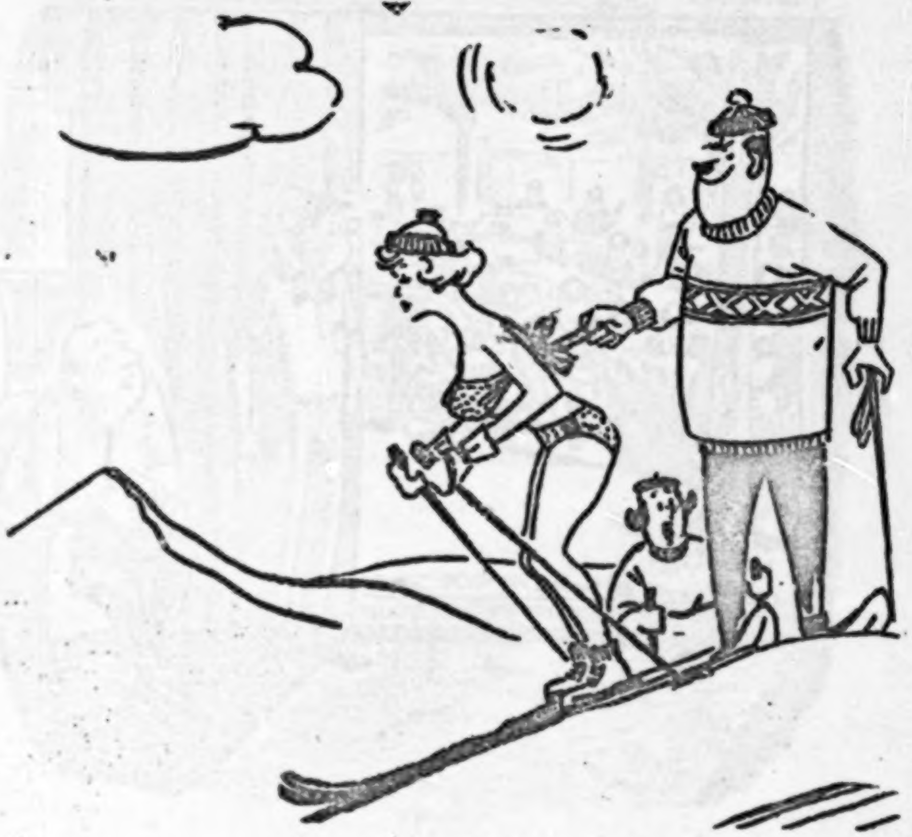
2

16



"Oops!"

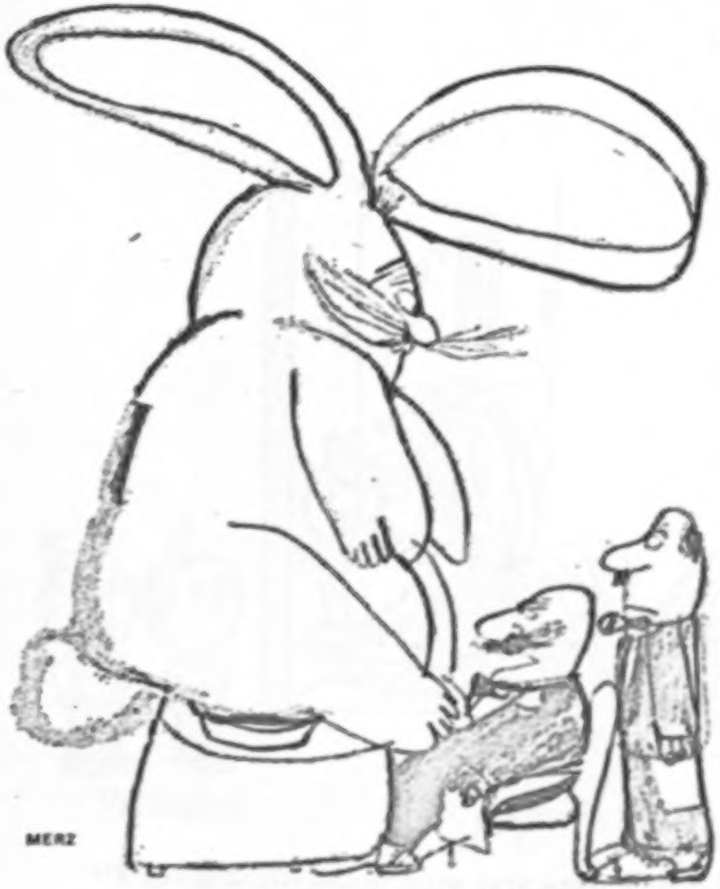
1



"Harry!!!"

2

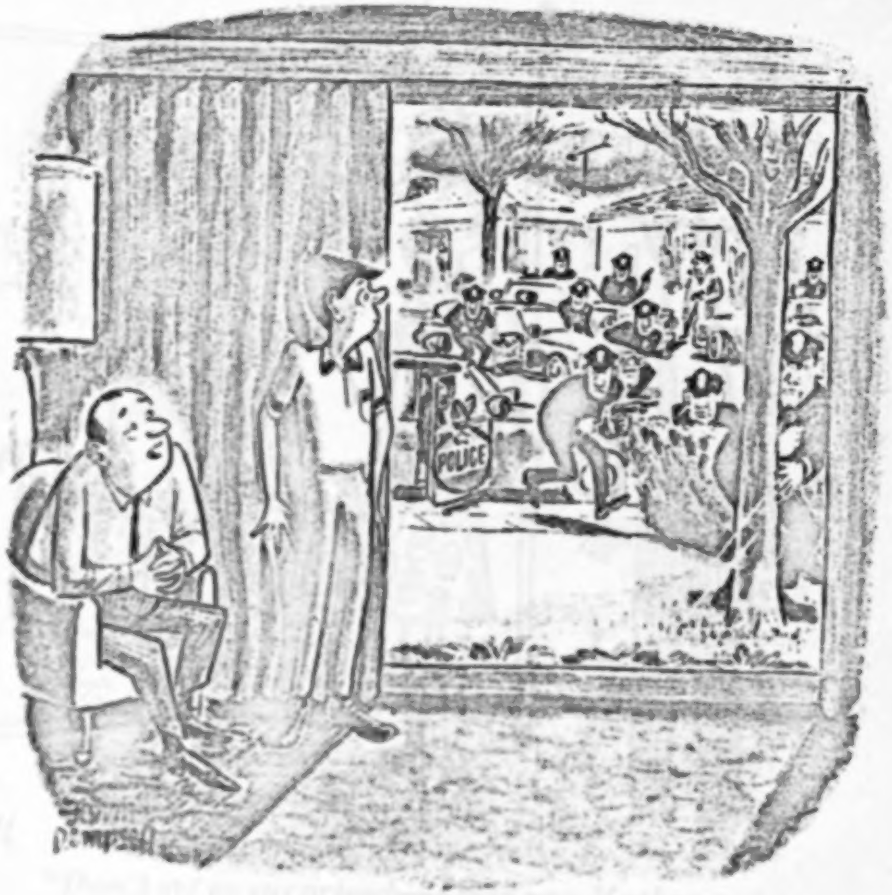
17



THE SATURDAY EVENING POST

"There's a hare in my soup!"

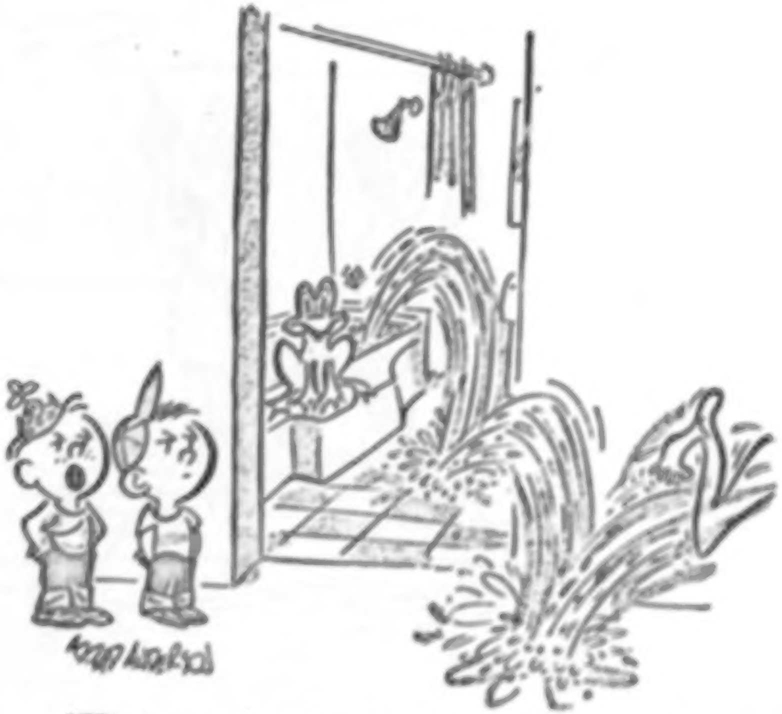
1


POLICE
DEMPSEY

"Care to tell me about it, son?"

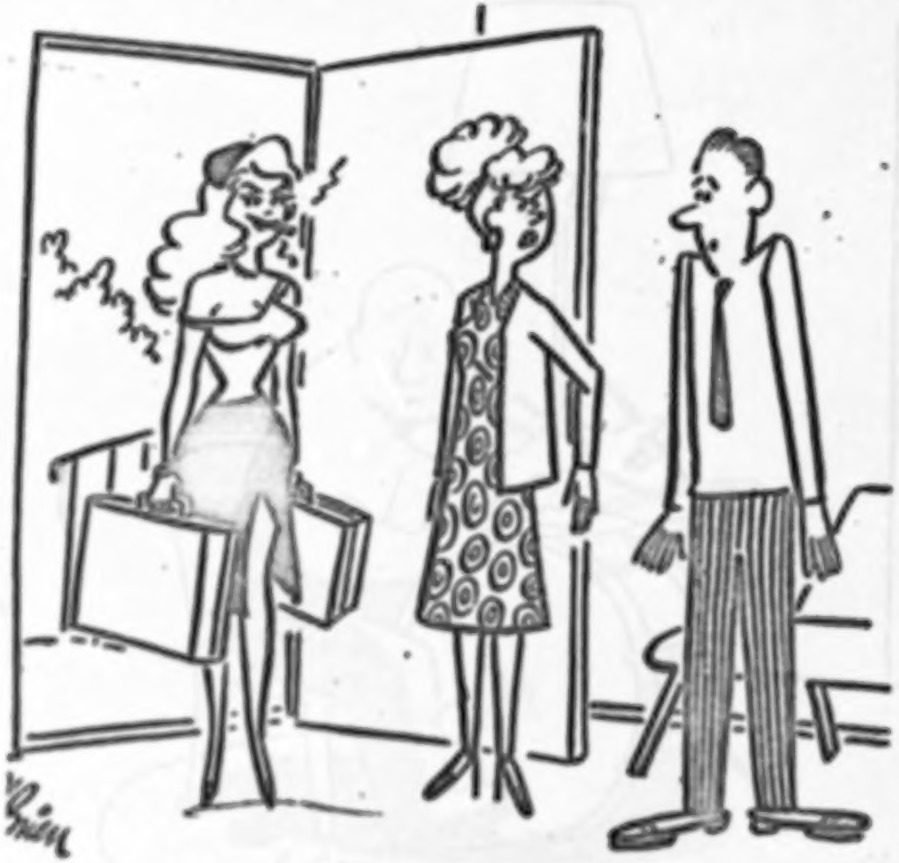
2

18



"Your grandmother sure gets around good for a lady her age."

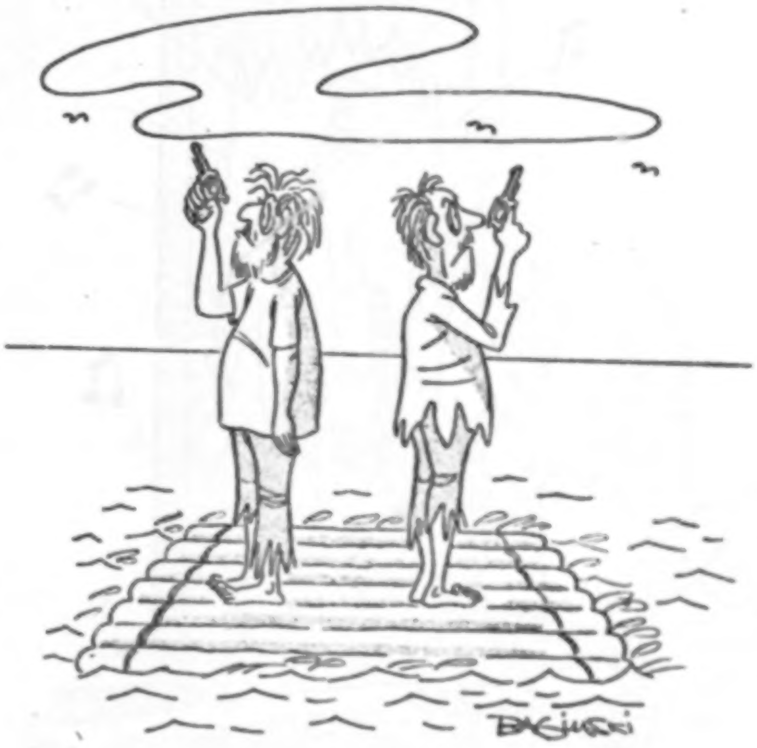
1



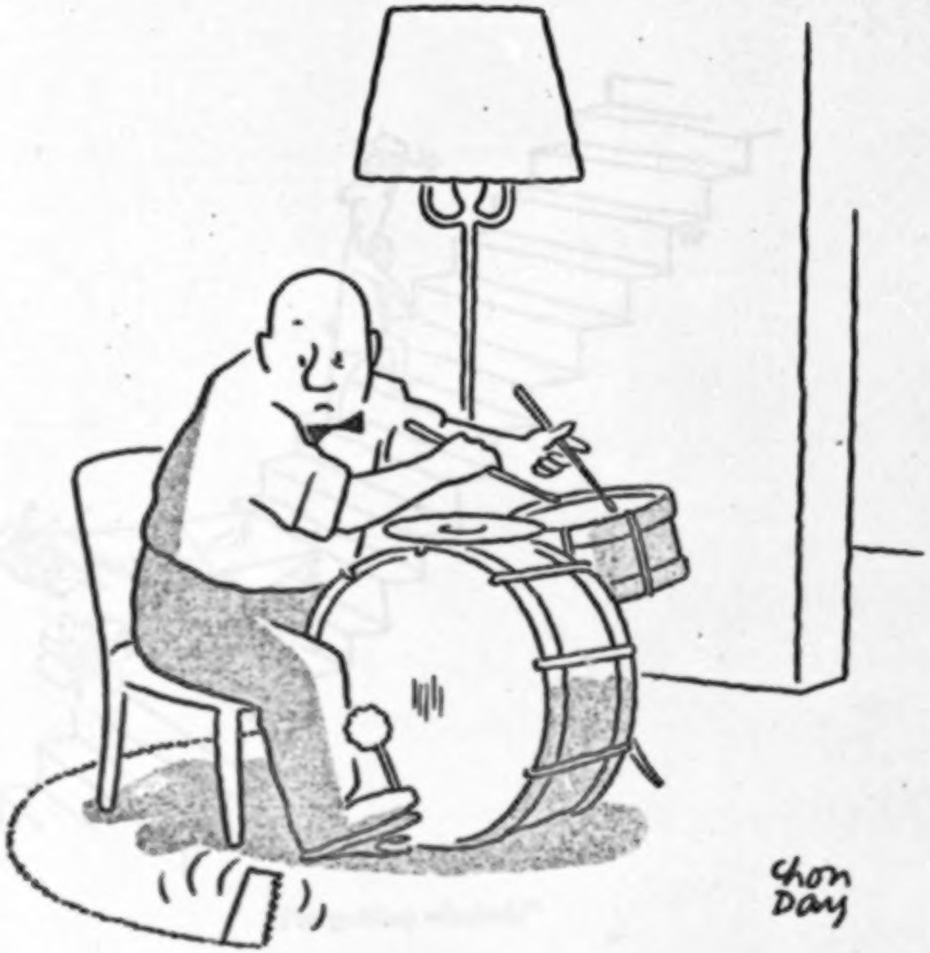
"Don't act so surprised—I told you Mother was coming to stay with us!"

2

19

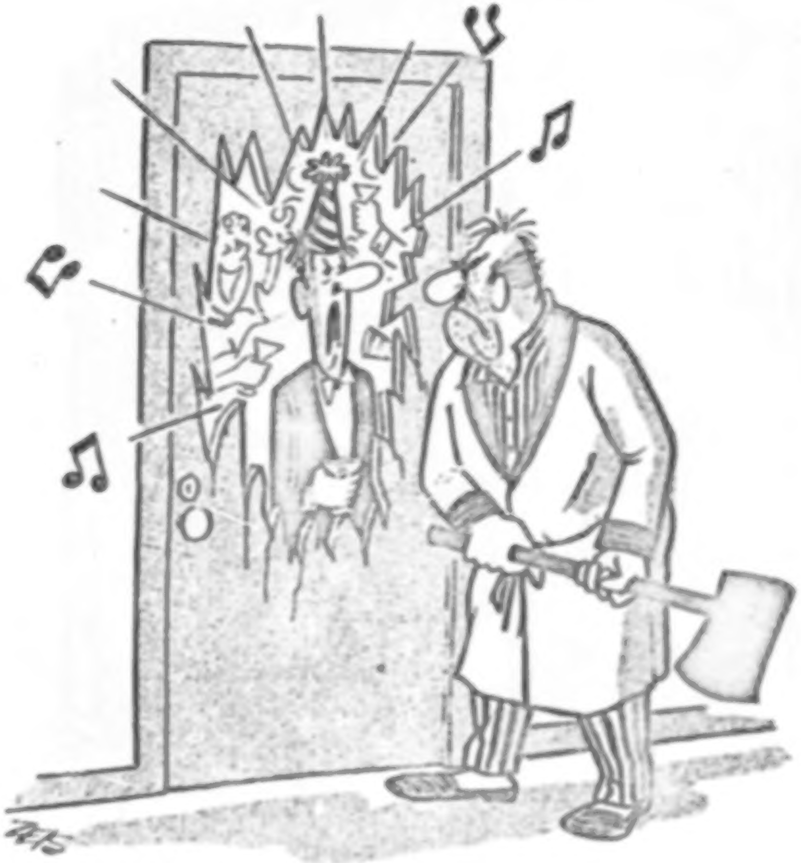


1



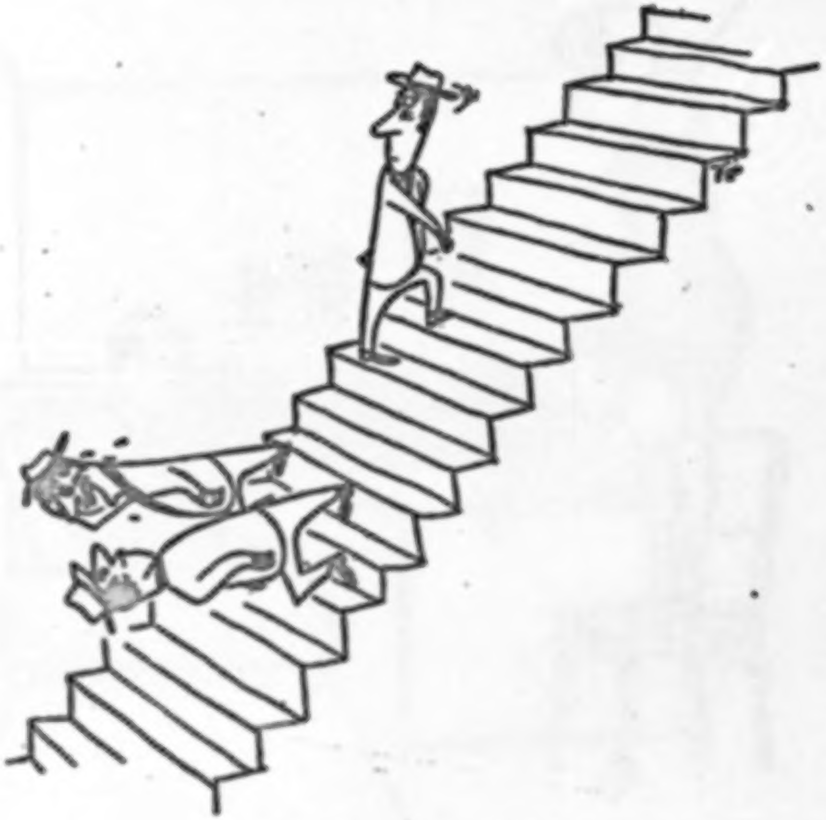
2

20



"Say—did you knock?"

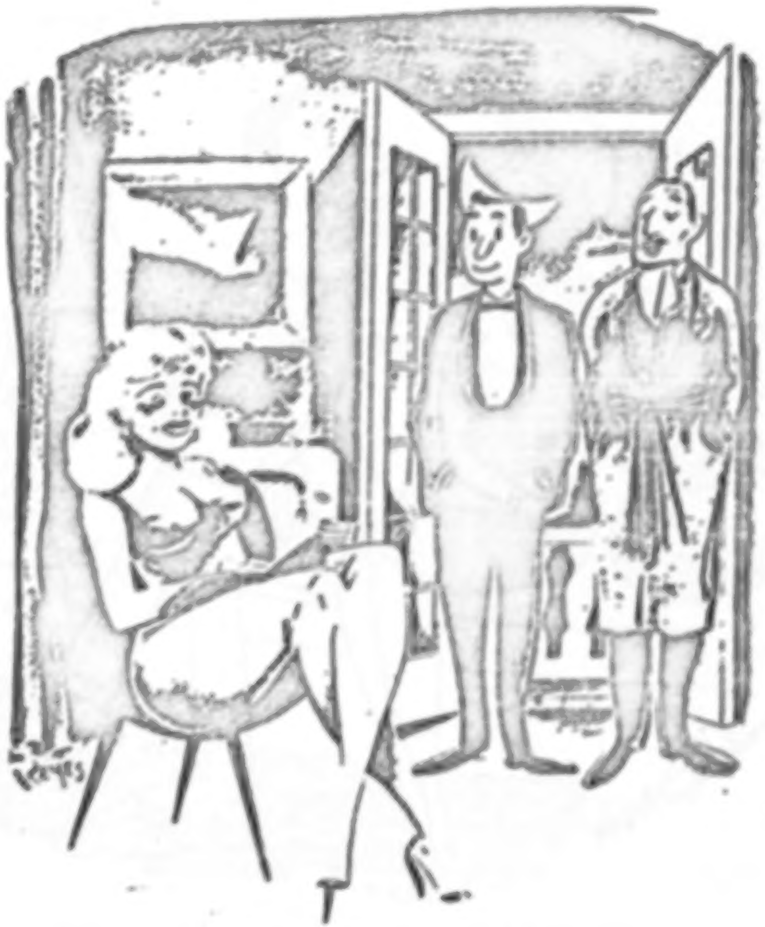
1



"I'm getting winded."

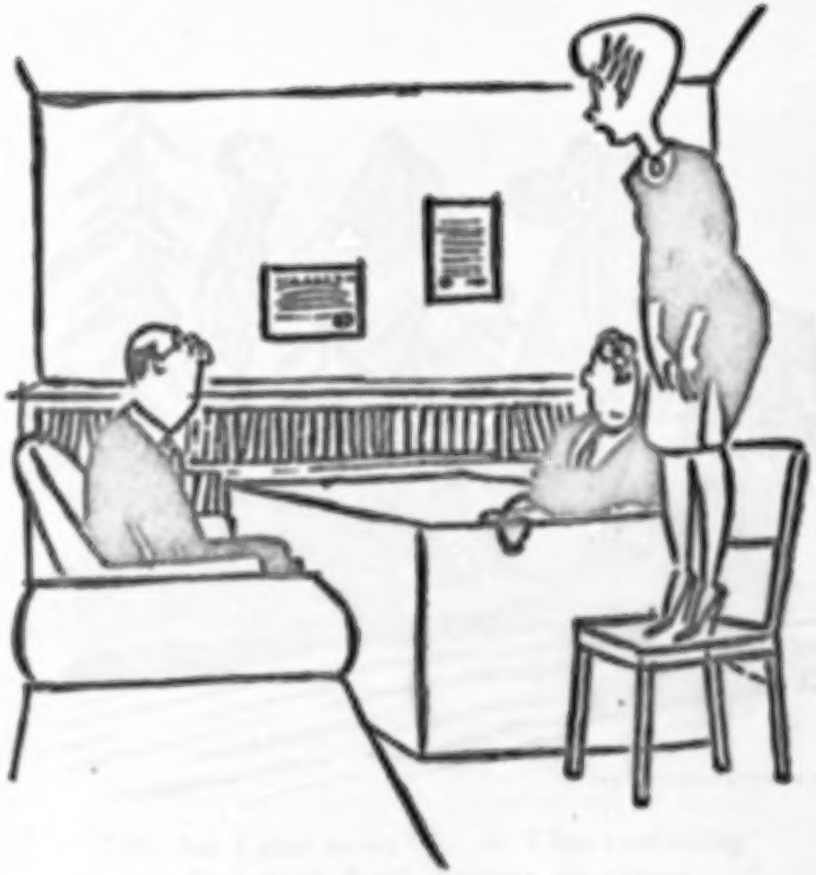
2

21



"She was left on my doorstep 21 years ago."

1

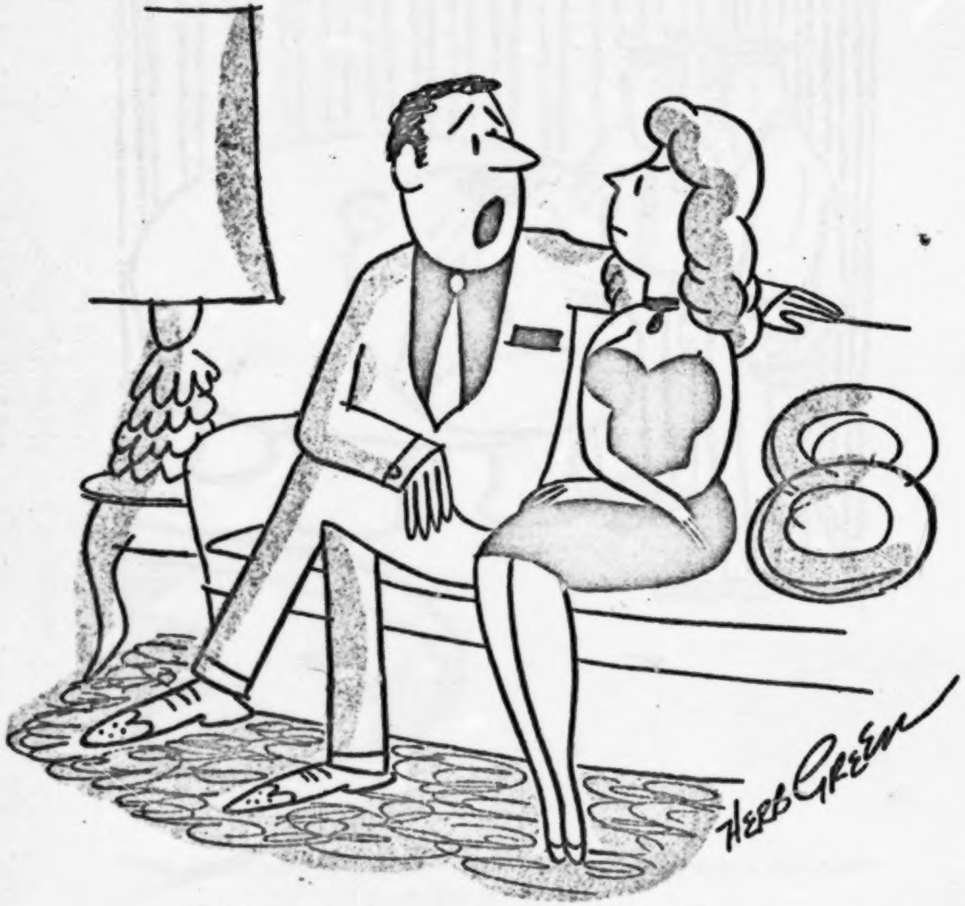


"He thinks he's a mouse."

2

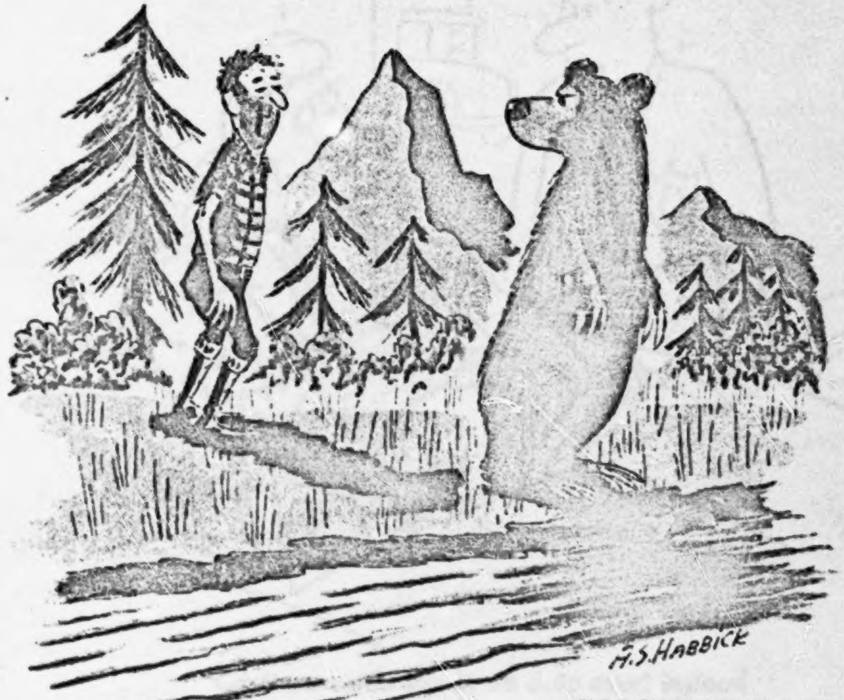
4

22



"Of course I respect you—haven't I told you a hundred times you're my kind of broad?"

1

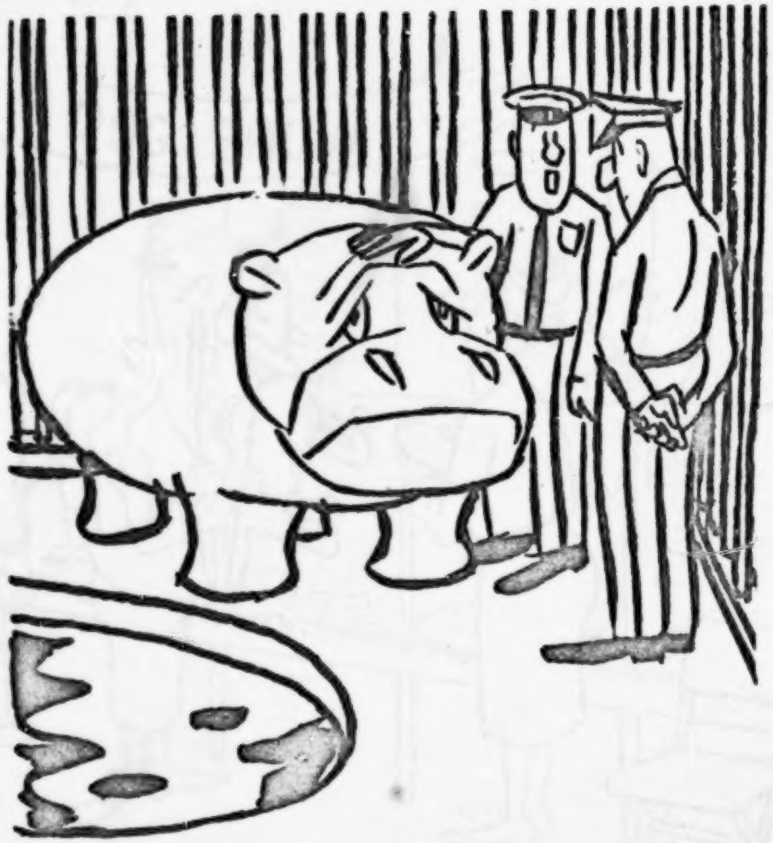


THE SATURDAY EVENING POST

"Hi. Am I glad to see you, sir. I lost everything in a flash flood. Food, clothing, my glasses . . ."

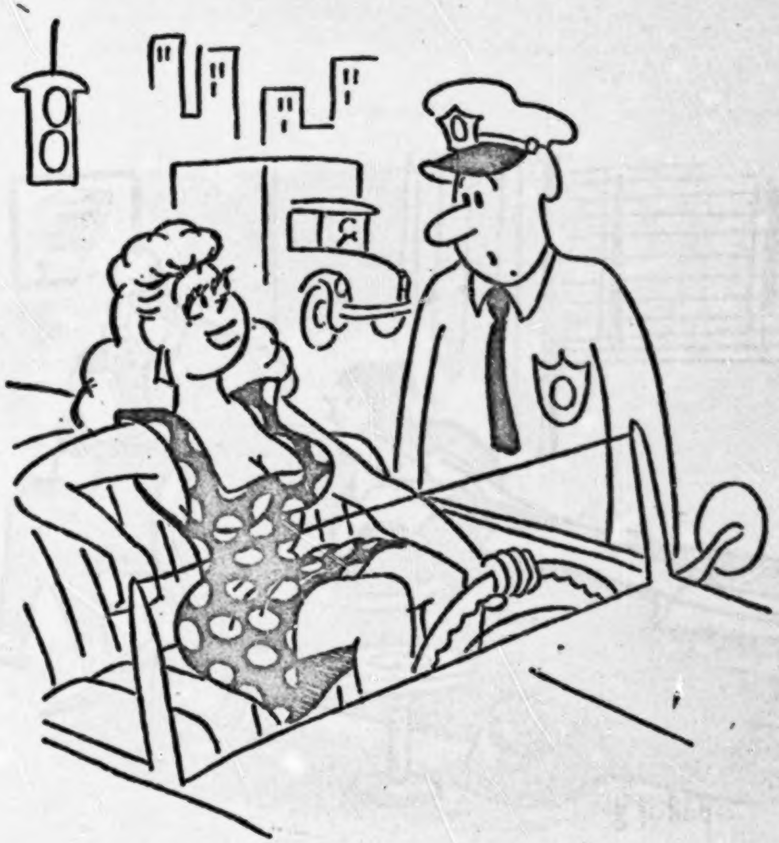
2

23



"The doctor said to give him eight hundred aspirins and call again in the morning."

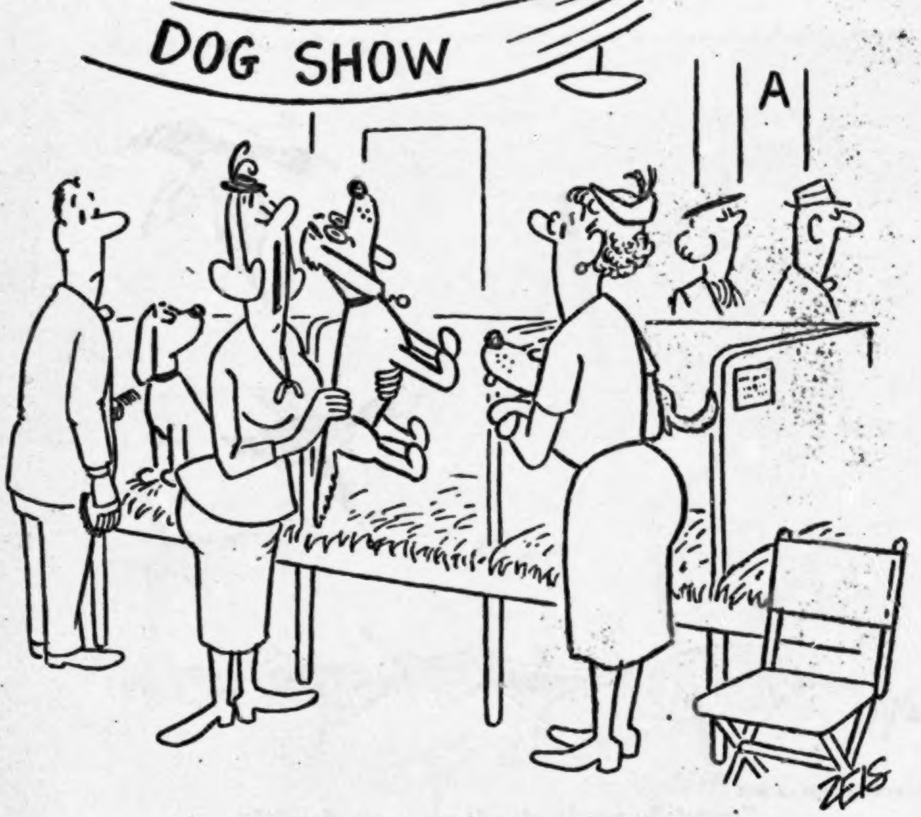
1



"Can't we settle this in an auto court instead of a traffic court?"

2

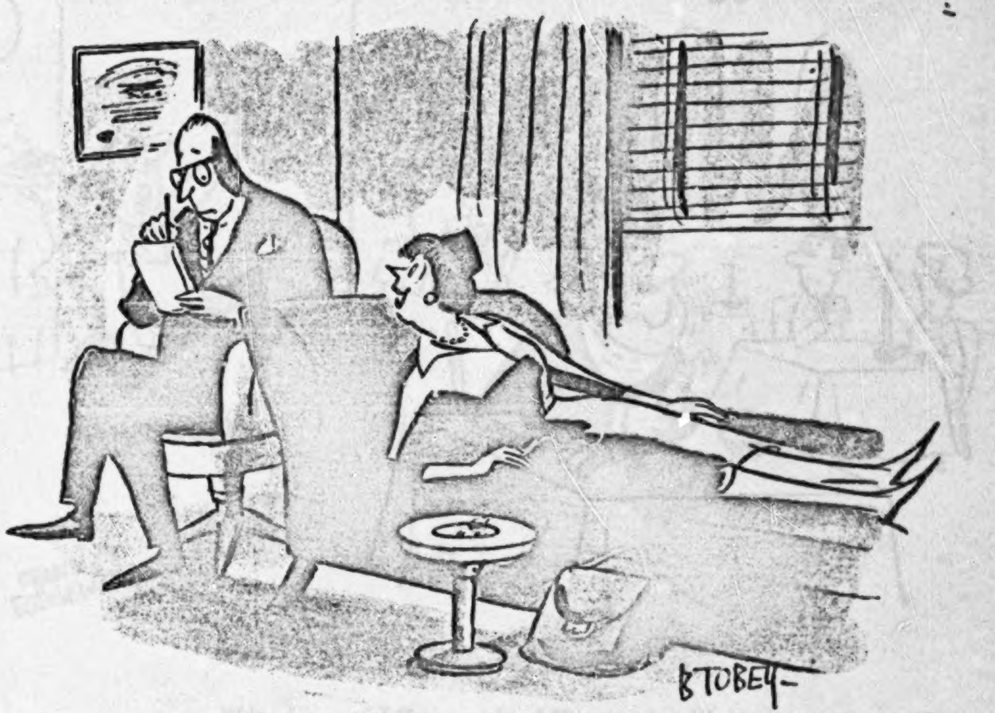
24


DOG SHOW
A
C
ZEIS

THE SATURDAY EVENING POST

"She always seems a little tense before a show."

1

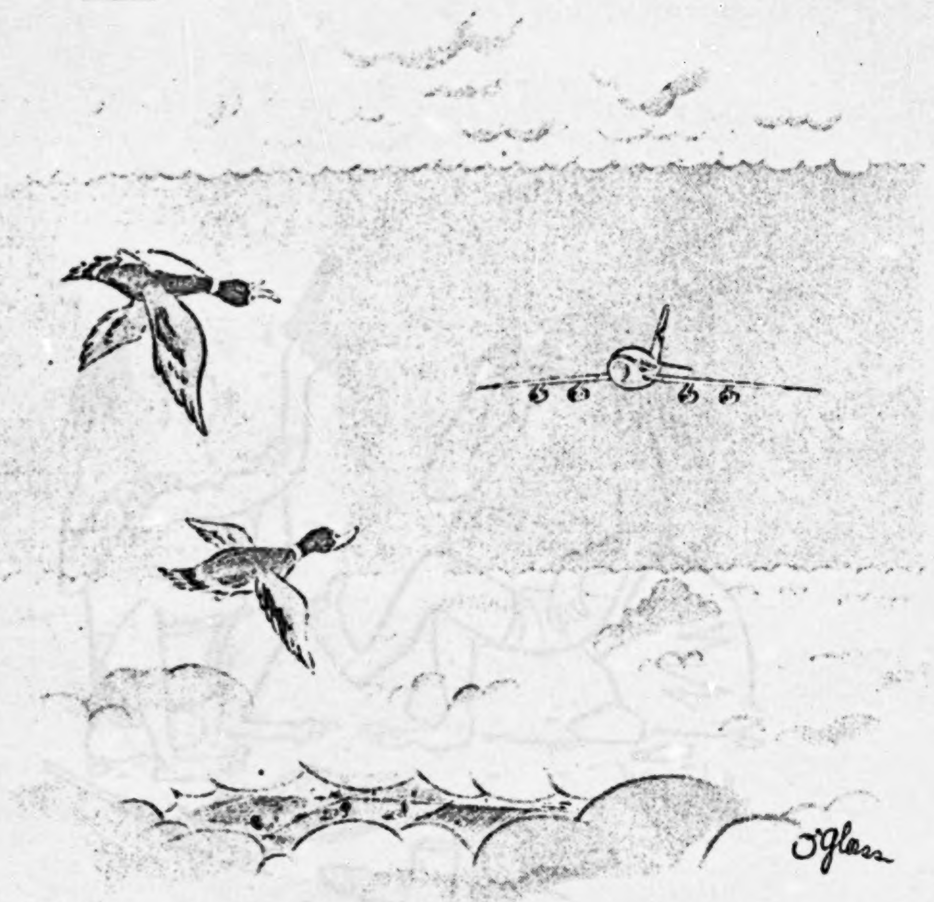


THE SATURDAY EVENING POST

"Why, Dr. Frobush, you're blushing!"

2

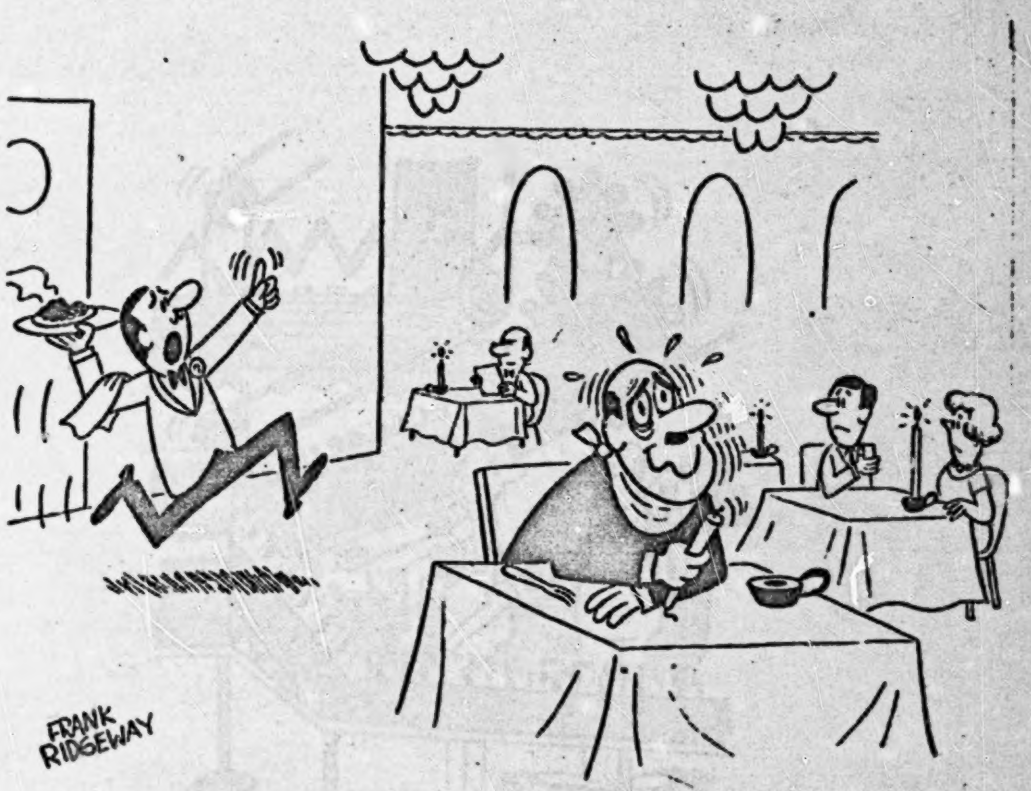
25



THE SATURDAY EVENING POST

"Watch me scare the devil out of them."

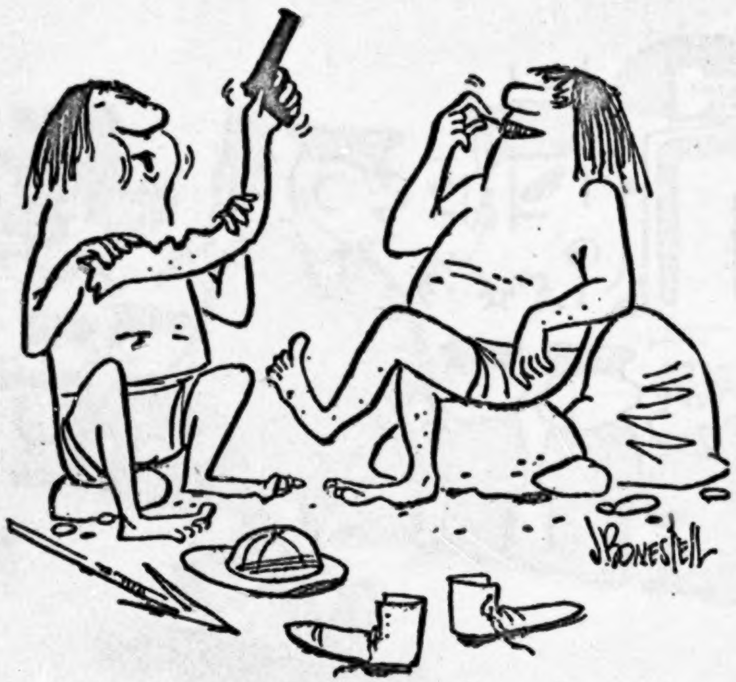
1


FRANK RIDGEWAY

"Hold on, sir! I'm coming! I'm coming!"

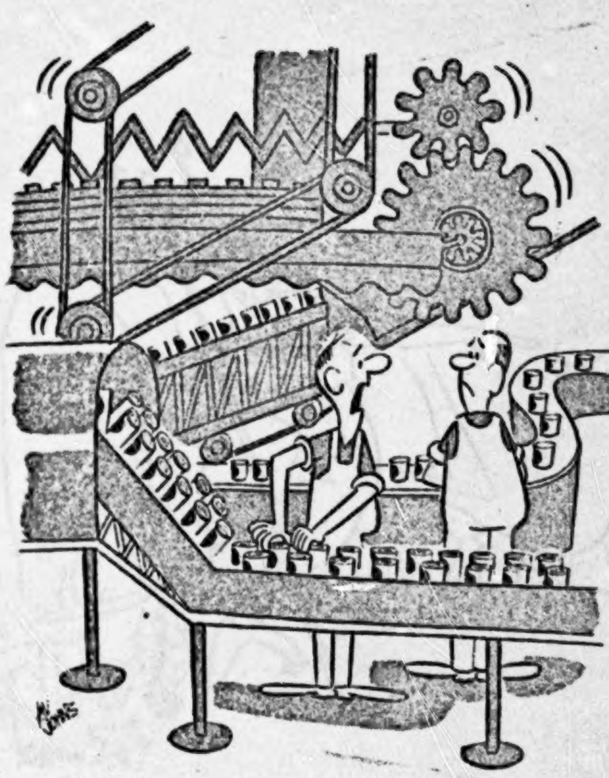
2

26



"You have to give him credit . . . he put up a fight to the end . . ."

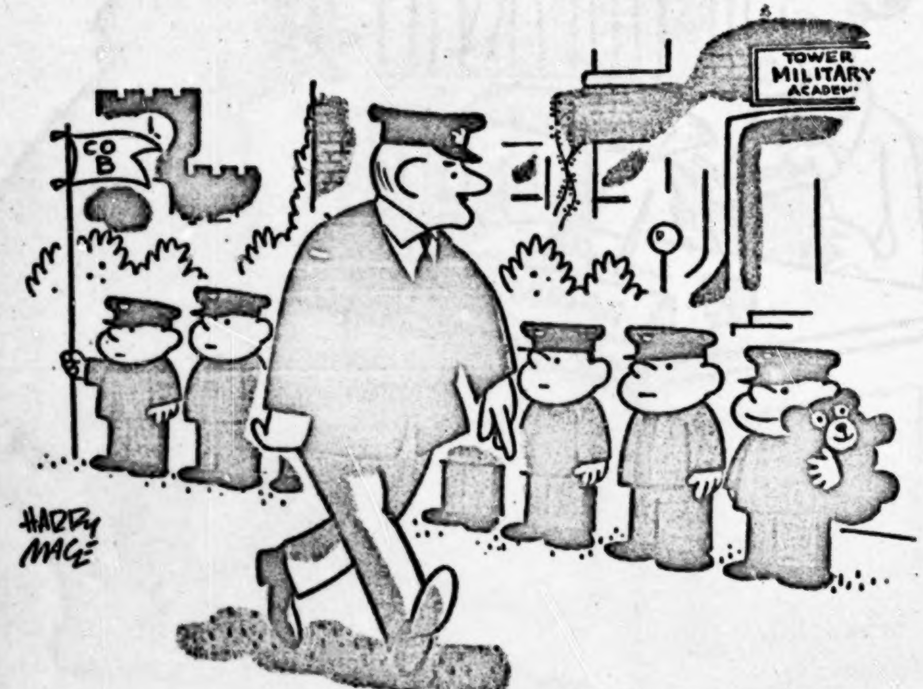
1



"Did you hear the awful news about Charlie? He got canned!"

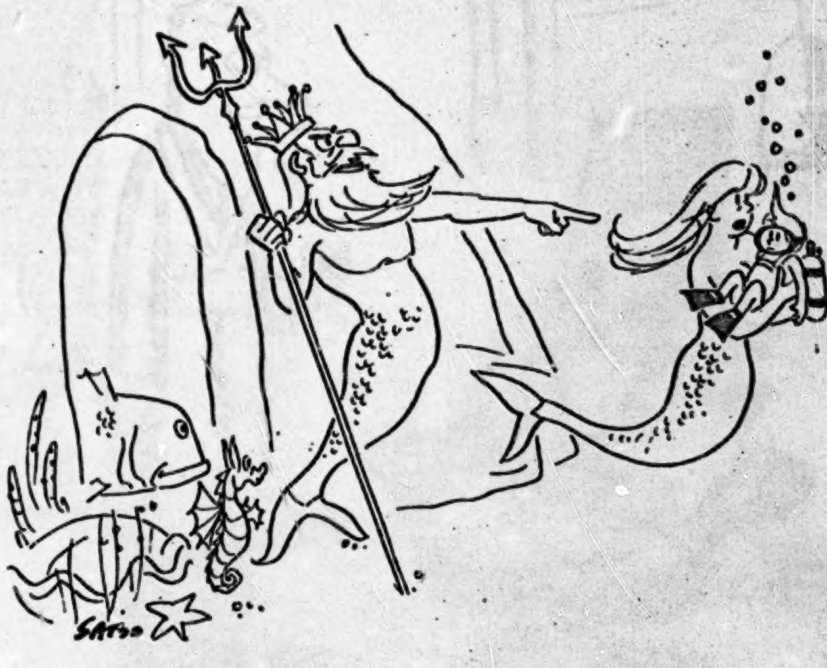
2

27


CO
B
TOWER
MILITARY
ACADEM·
HARRY
MACE

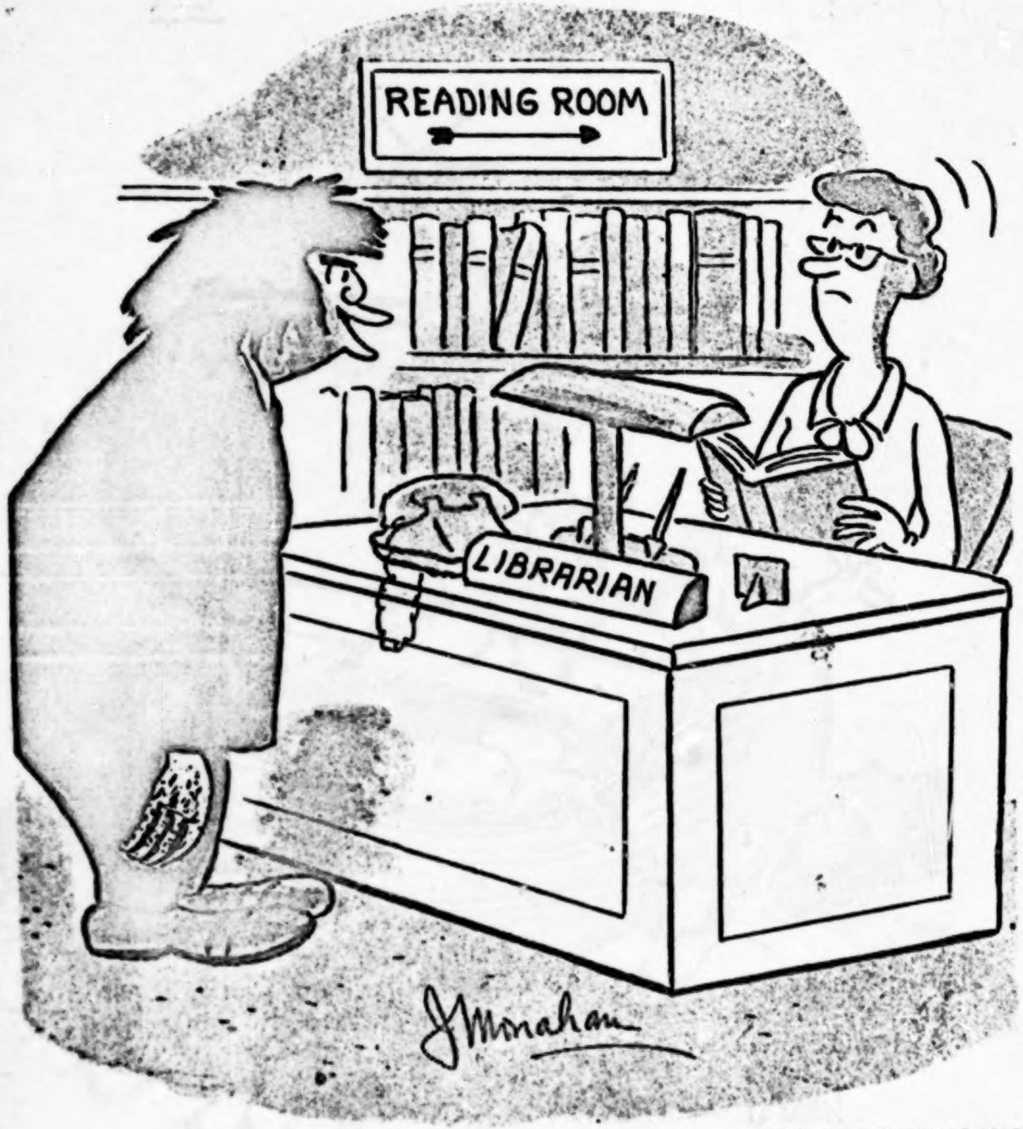
THE SATURDAY EVENING POST

1



2

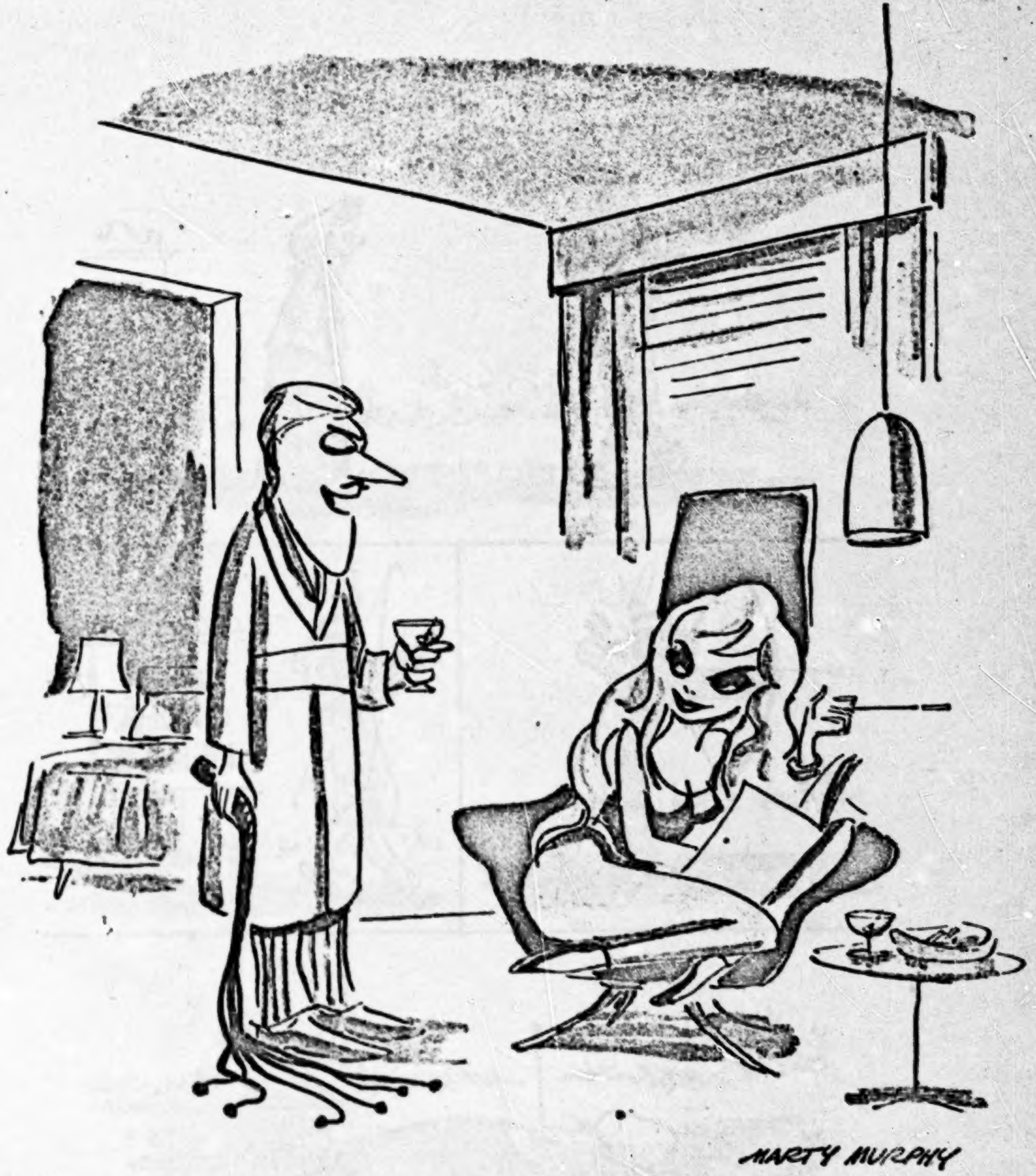
28


READING ROOM
LIBRARIAN
JMonahan

THE SATURDAY EVENING POST

"Got anything on evolution?"

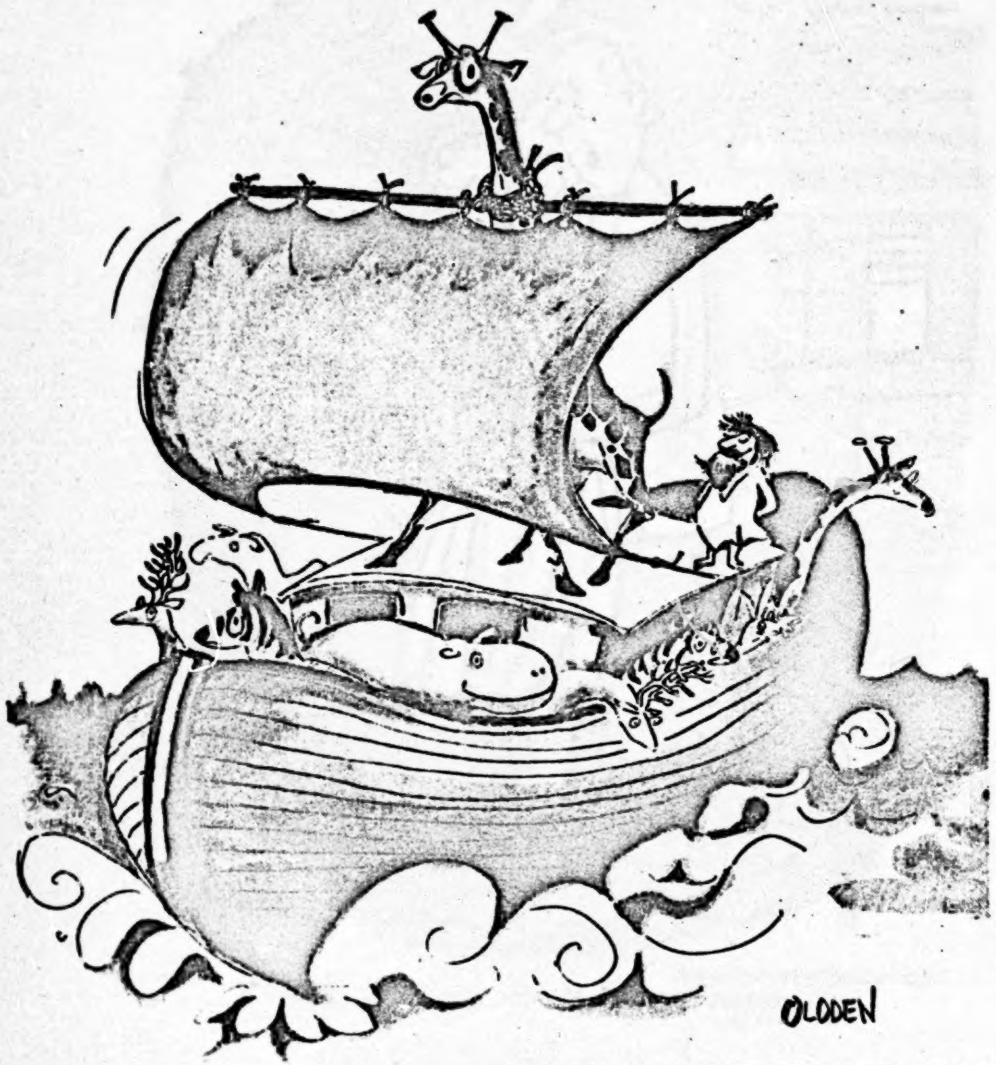
1


MARTY MURPHY

"Beddie-bye time, sweetheart."

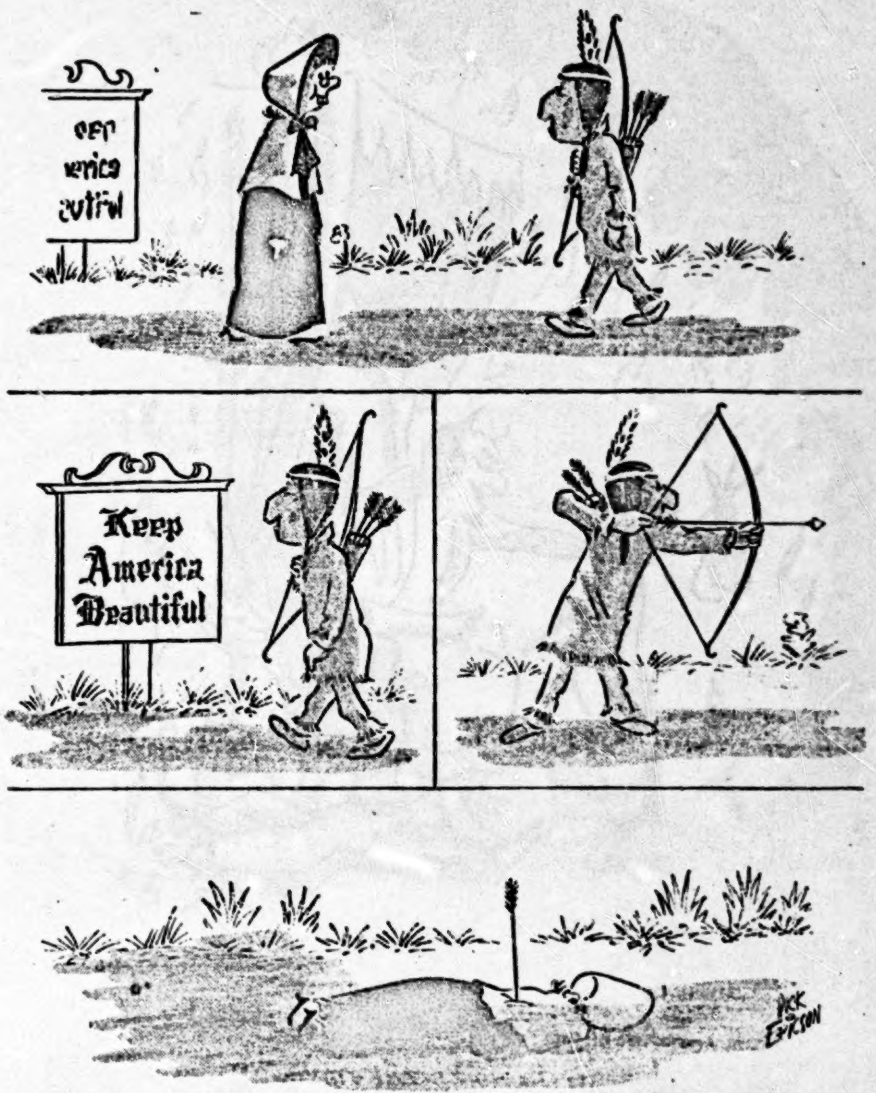
2

29



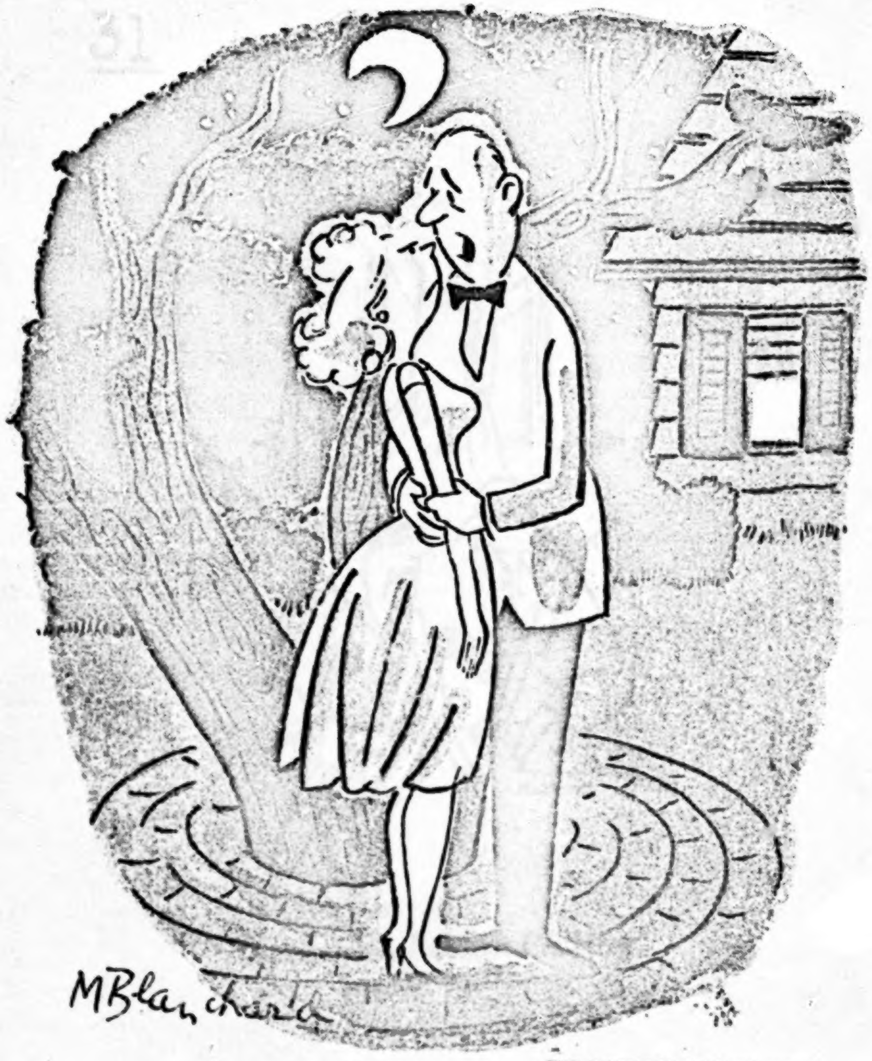
THE SATURDAY EVENING POST

1


eep
erica
autiful
Keep
America
Beautiful
DICK ERICSON

2

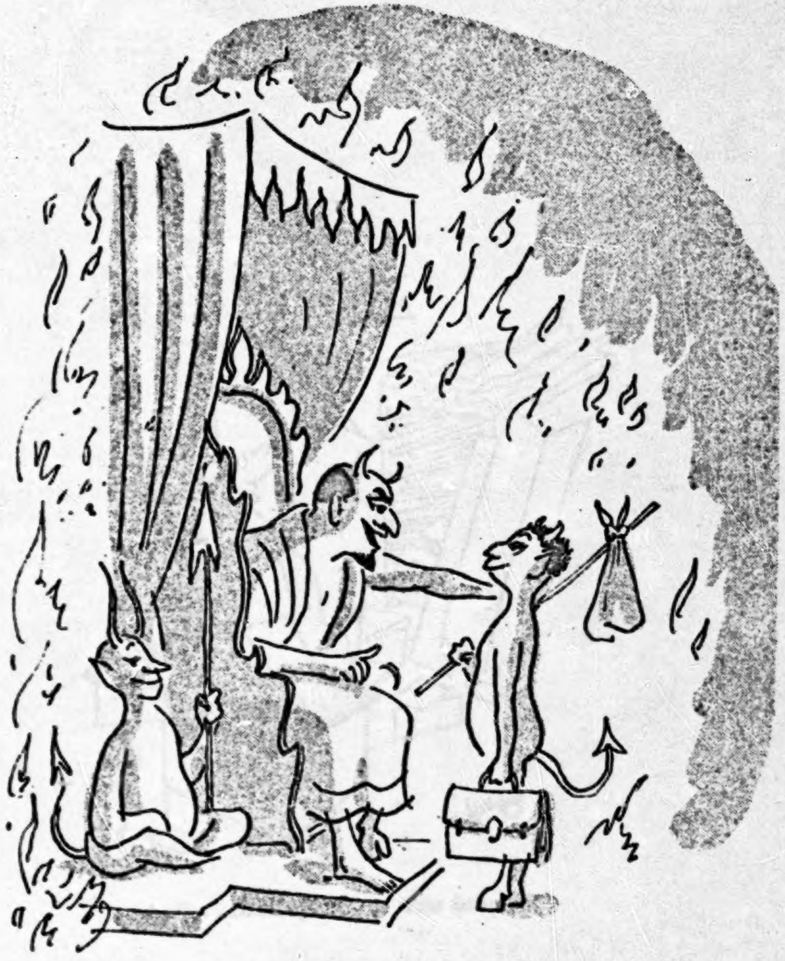
30


MBlanchard

THE SATURDAY EVENING POST

"I need you. Well, anyway, I need somebody."

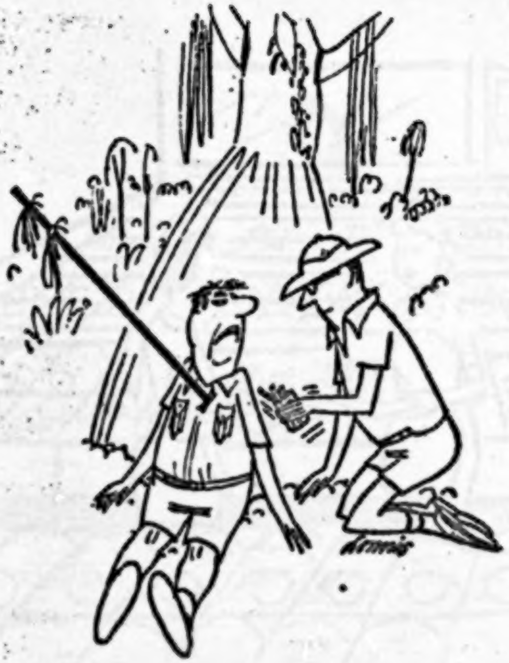
1



"Remember—quote plenty of Scripture."

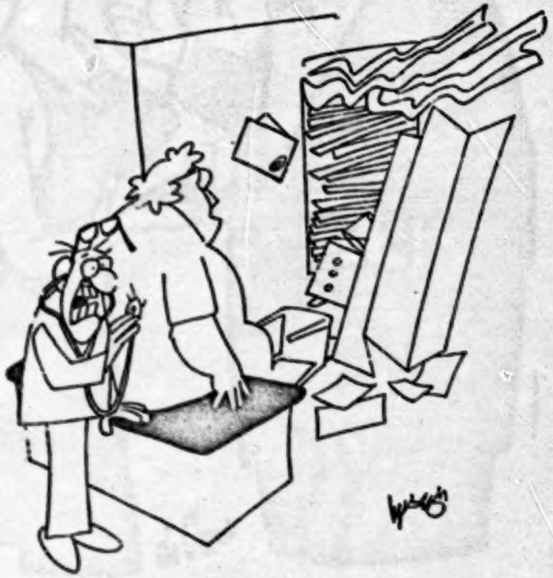
2

31



"No, thanks. I think I'll stop smoking."

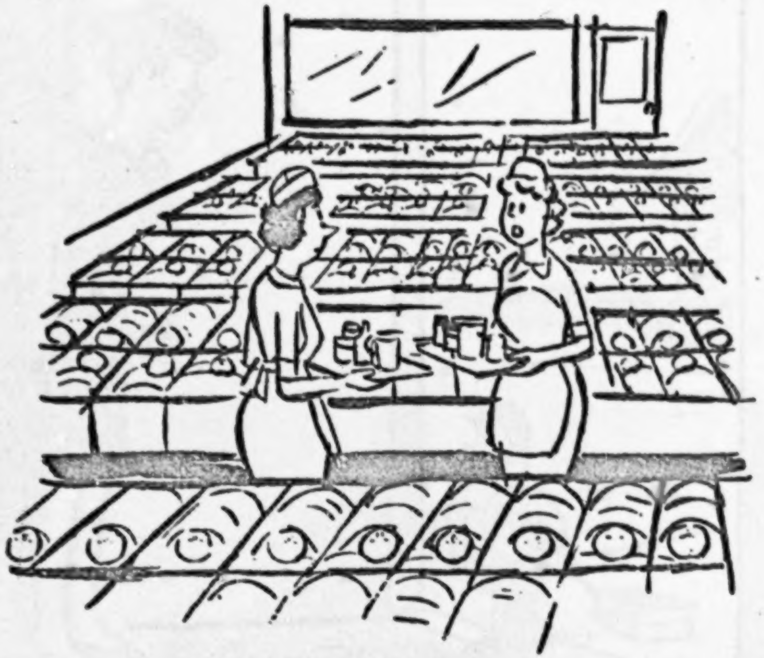
1



". . . that's fine, . . . now inhale."

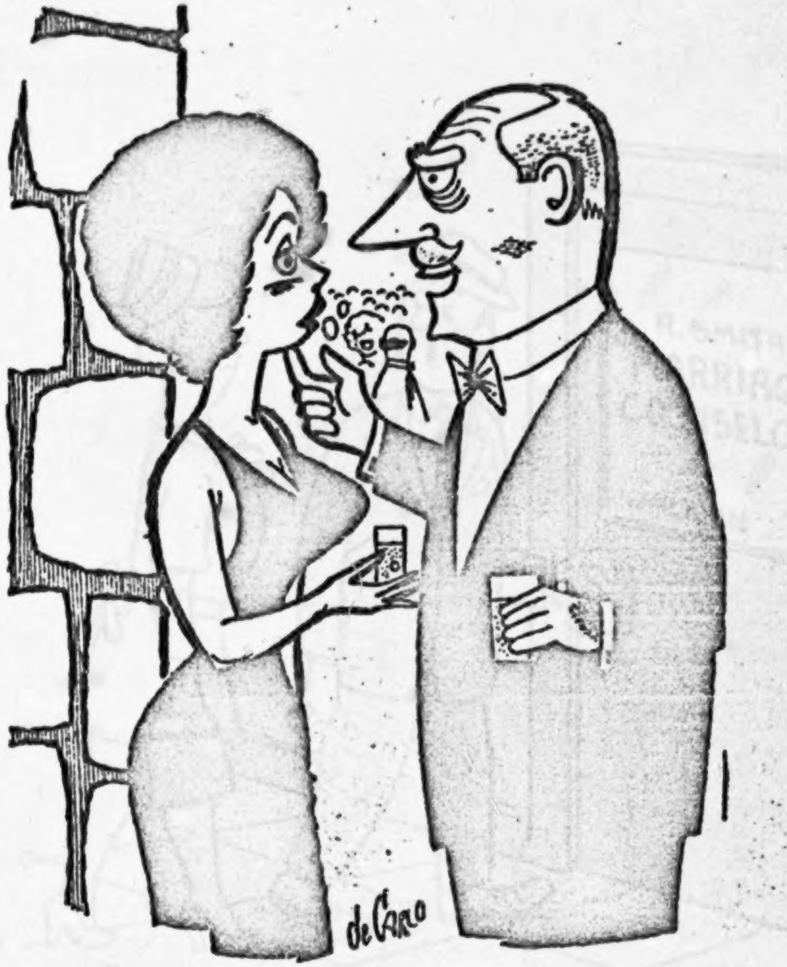
2

32



"Just think! Somebody loves every last one of them!"

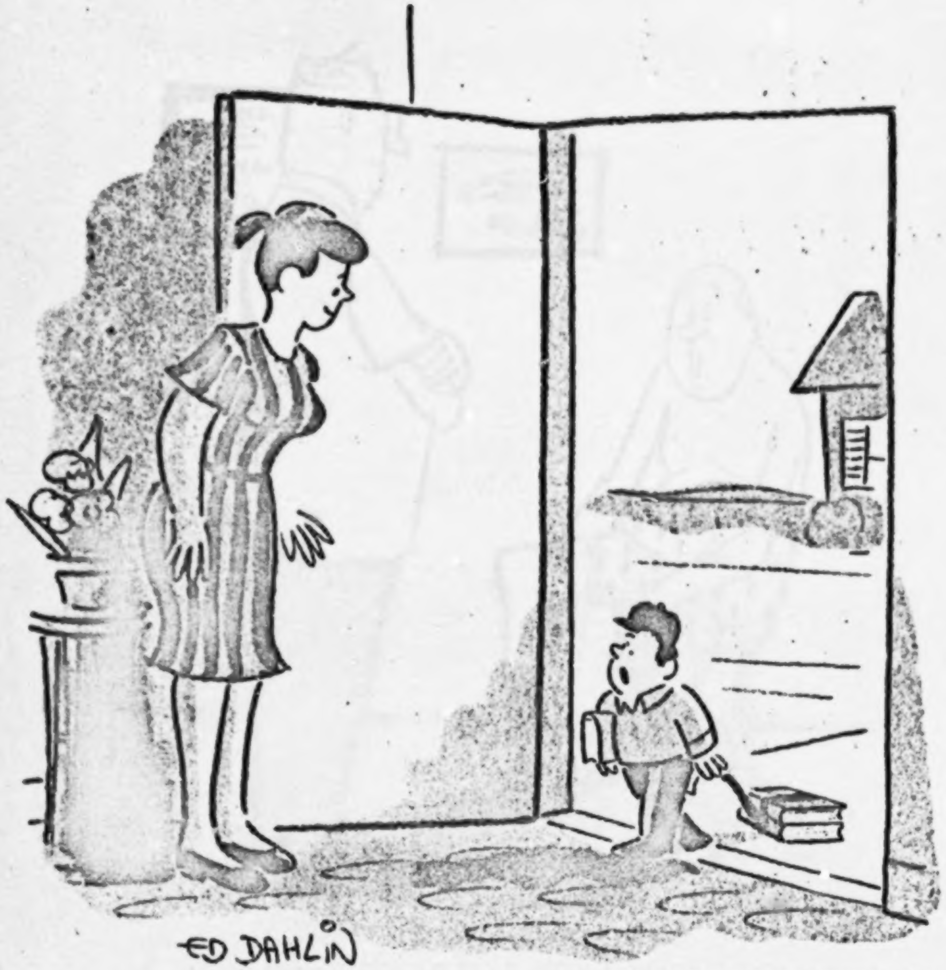
1



"And whose little mistress are you?"

2

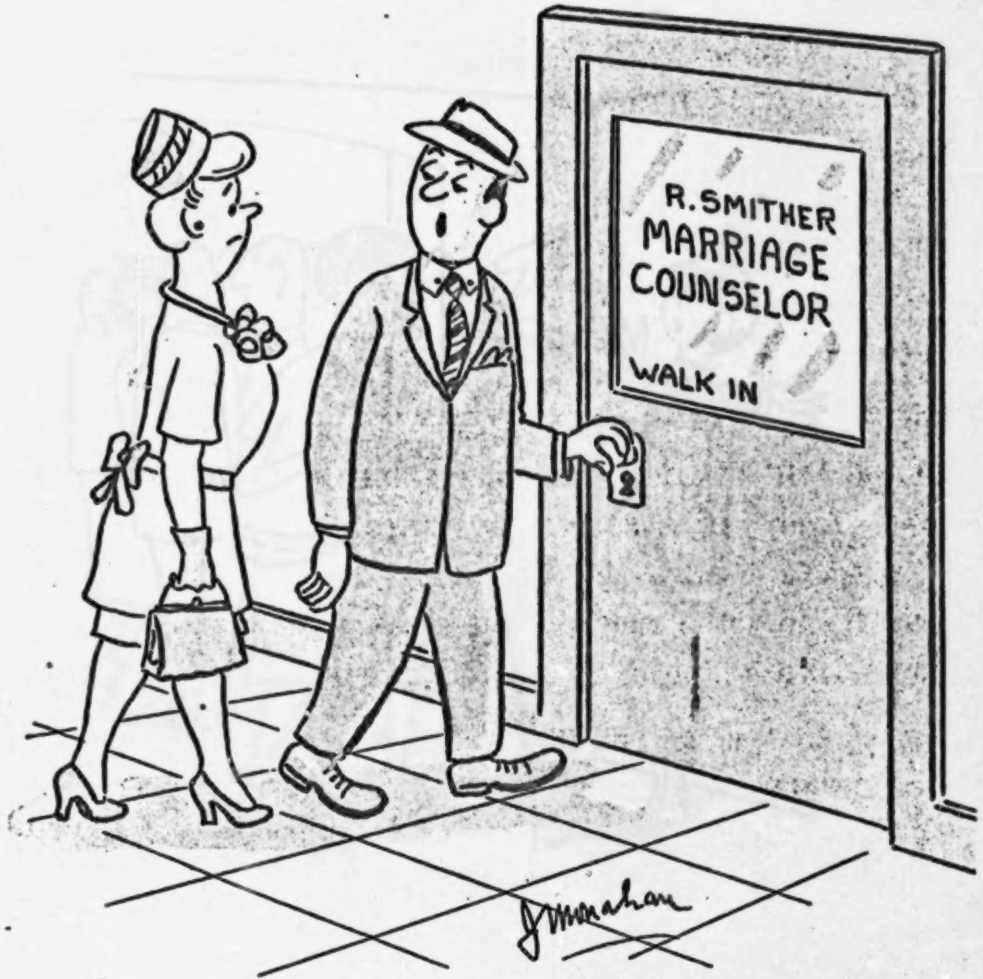
33



THE SATURDAY EVENING POST

"Quick, I need a chocolate malted to help me unwind."

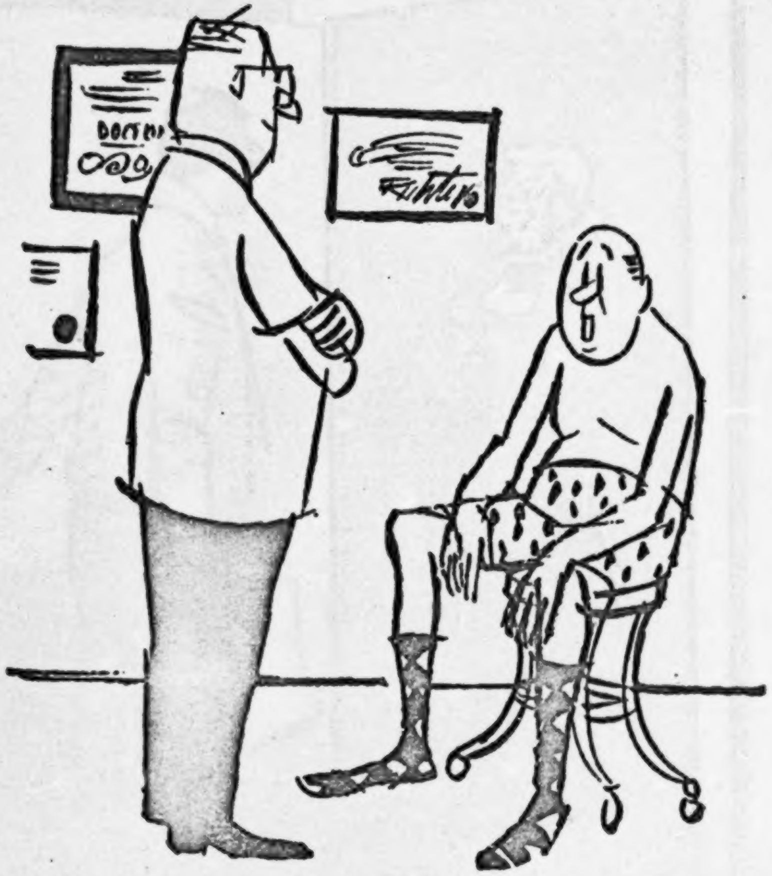
1


R. SMITHER
MARRIAGE
COUNSELOR
WALK IN

"We'll let him decide who's wrong—and why you are."

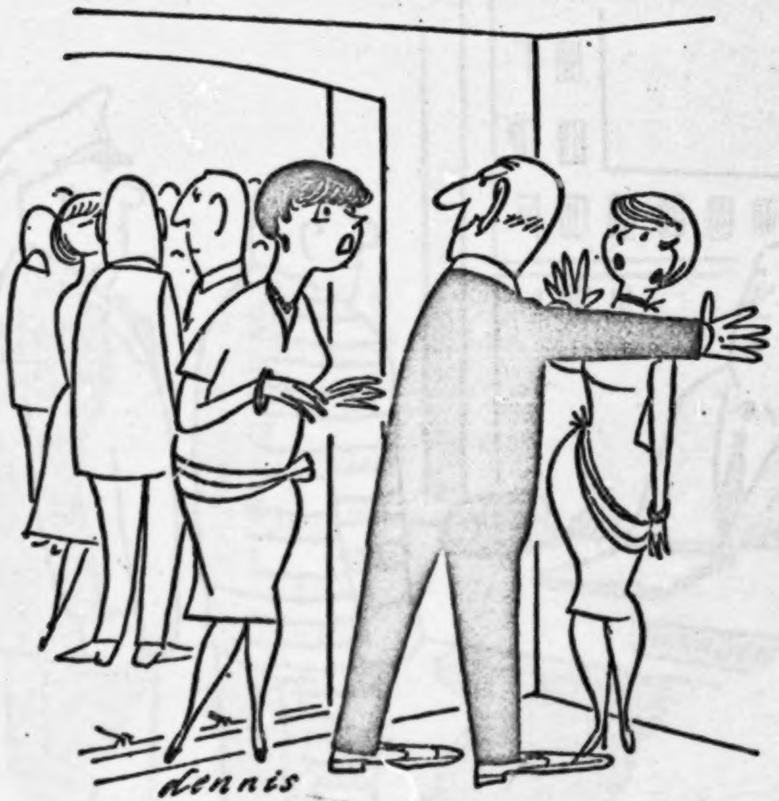
2

34



"Outside of not feeling well, I feel pretty good."

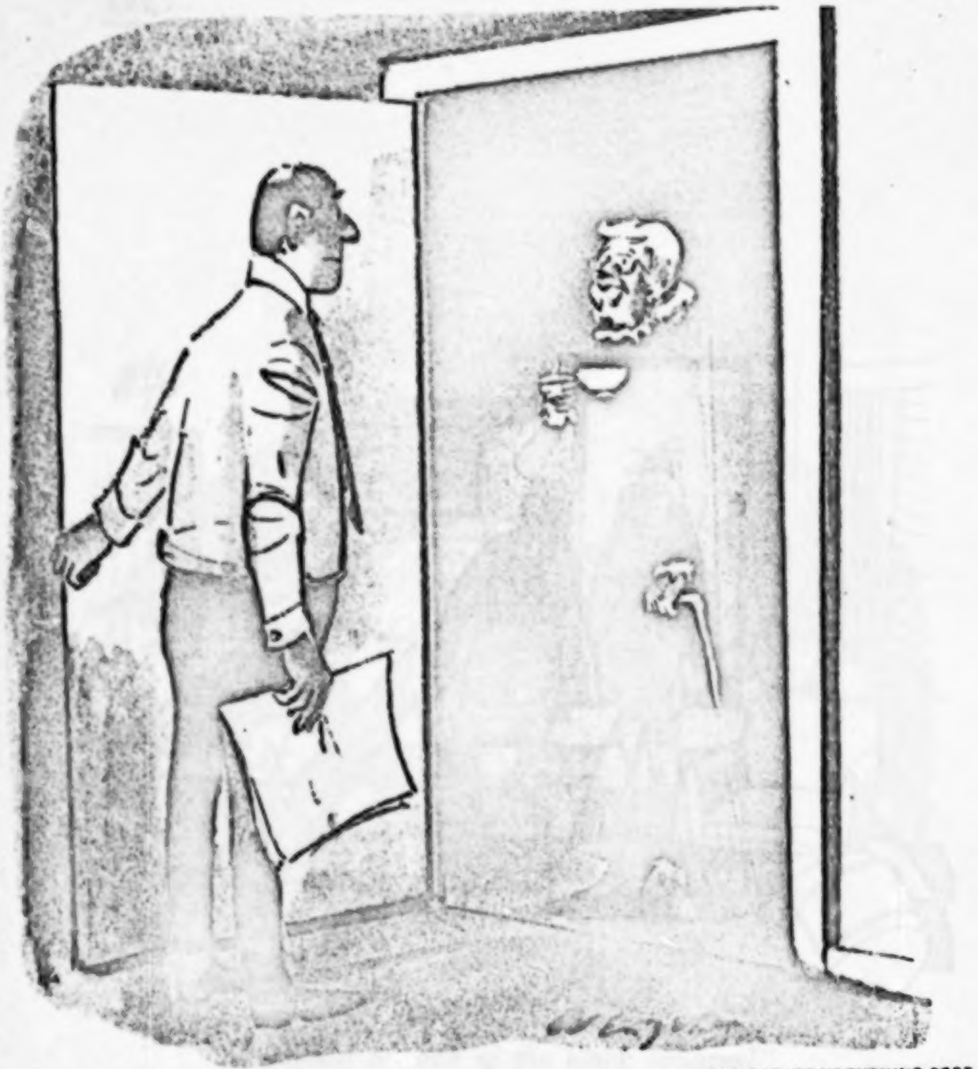
1



"Please, dear—I'm counting on you to circulate."

2

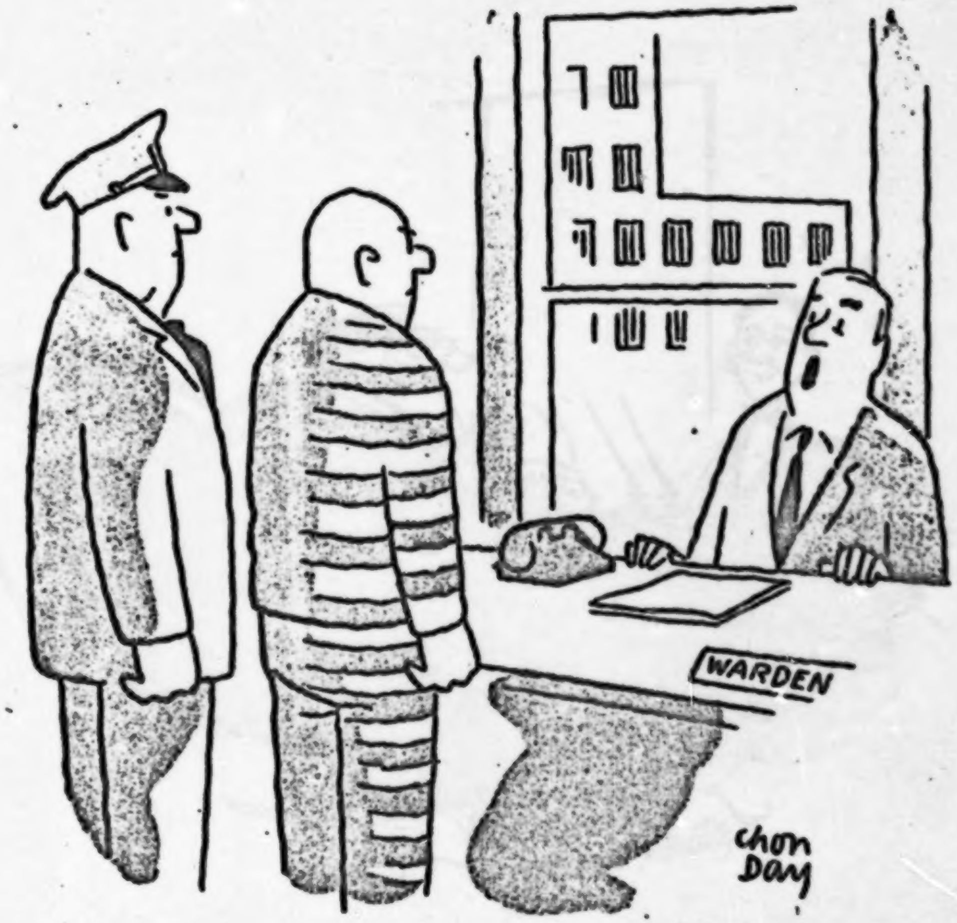
35



THE SATURDAY EVENING POST

"I'm the sweet old lady from down the hall—May I borrow a cup of gin?"

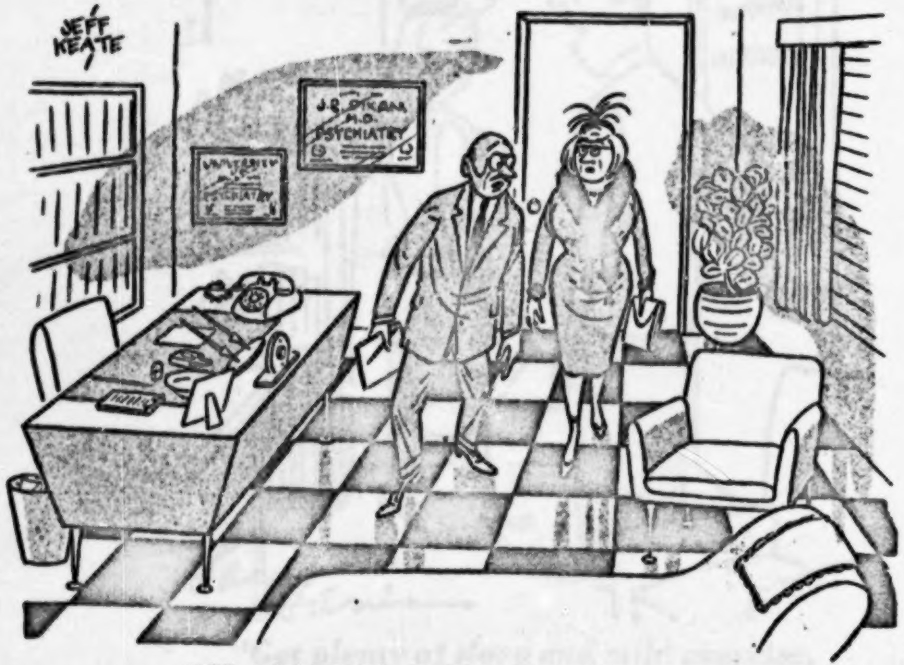
1



"Oh, come now, Murphy, be reasonable. You're not supposed to like it here."

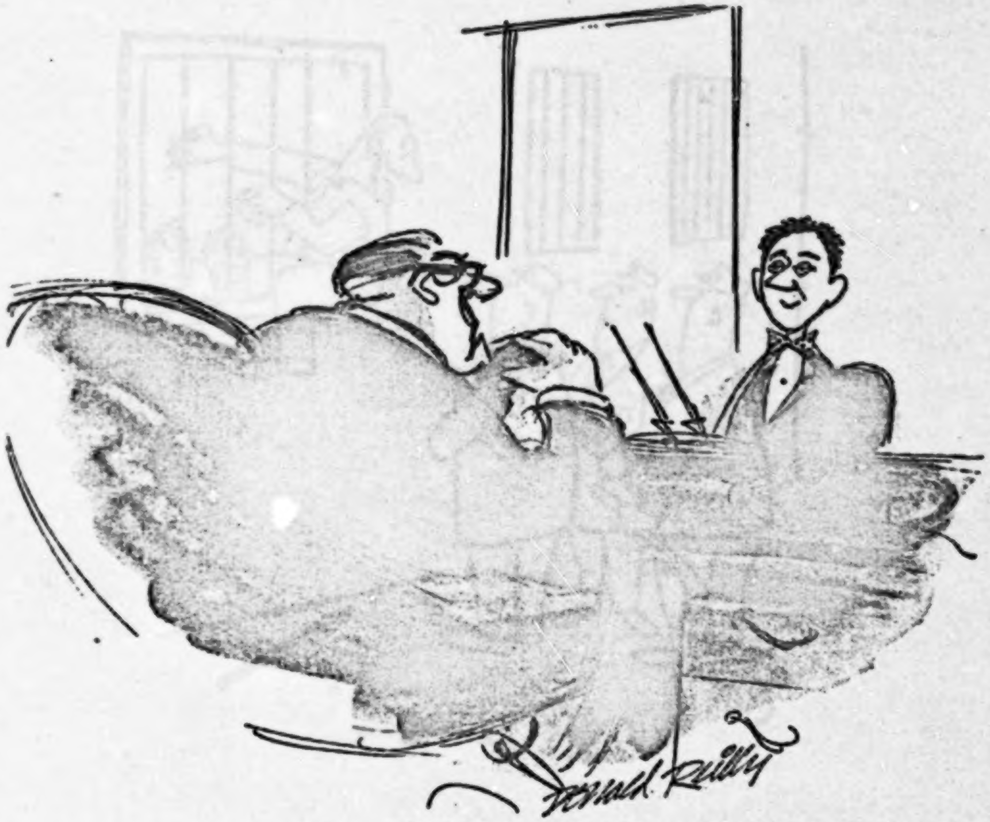
2

36


JEFF KEATE
UNIVERSITY
PSYCHIATRY
M.D.
PSYCHIATRY

"Oh, oh! Watch it, Mrs. Forsythe—you stepped on one of the black squares!"

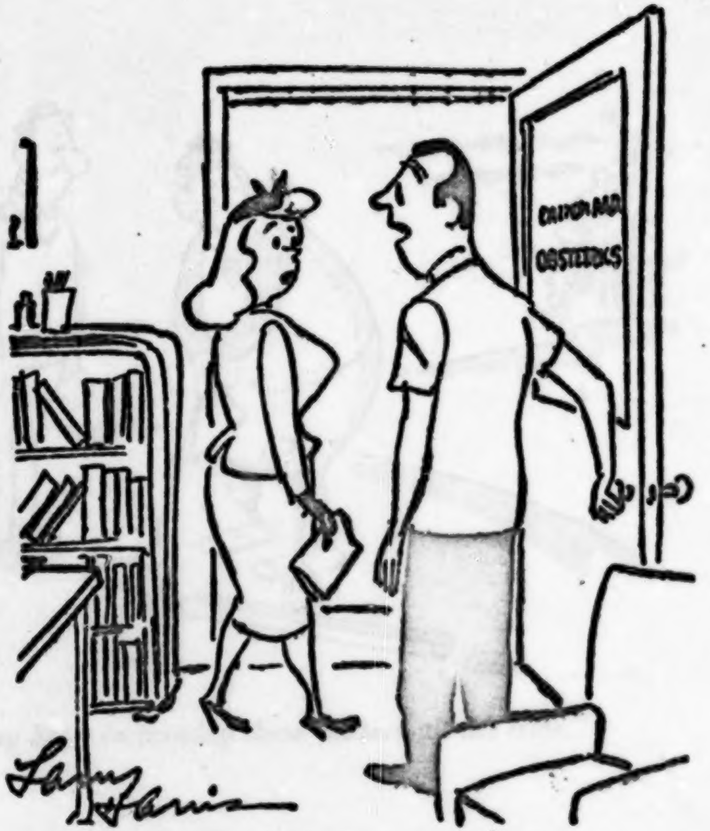
1


Donald Reilly

"I'm glad you feel you can come to me with your problems, Fenton. And now I'll give you exactly three seconds to get the hell out of here."

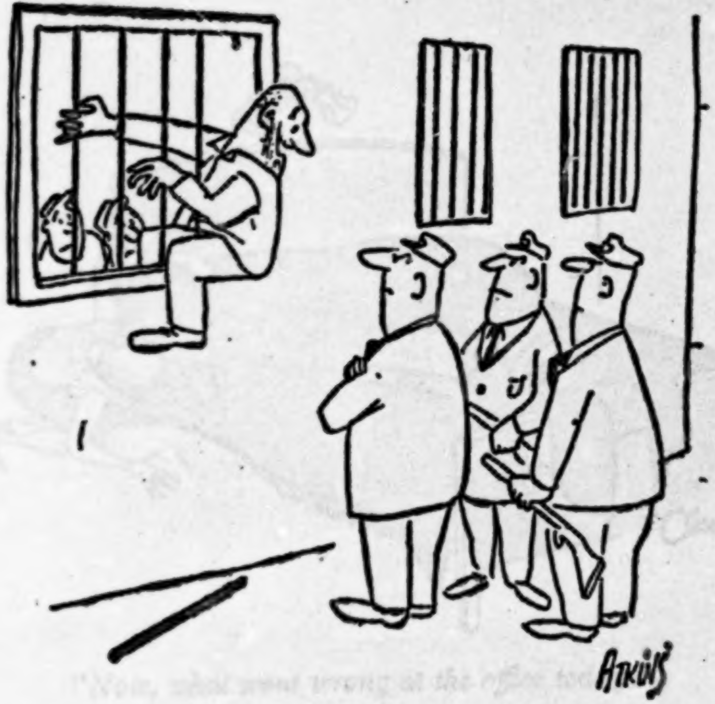
2

37



"Get plenty of sleep and mild exercise, drink lots of milk—and try to snag yourself a husband."

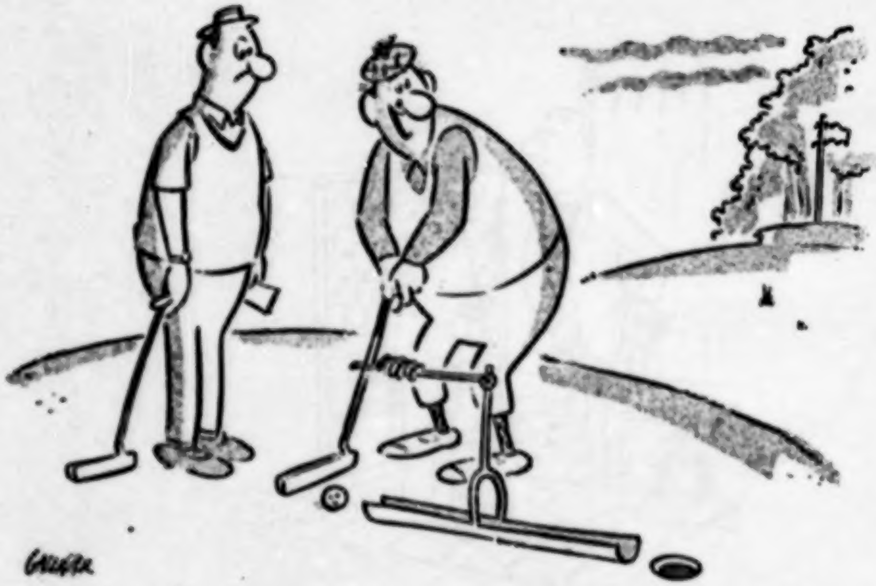
1



"Oh, hello, Warden, I'm just getting a laugh out of the fellows by making like I'm playing the harp."

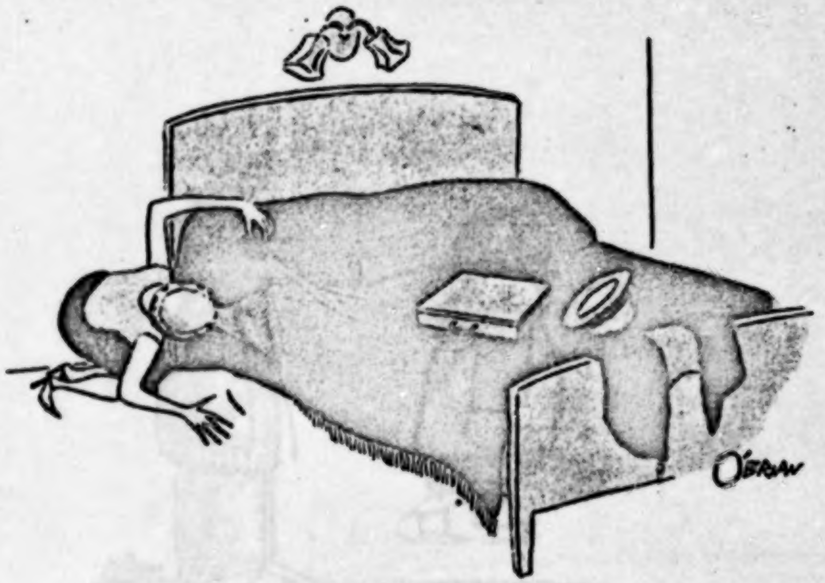
2

38



"They keep improving these putters all the time."

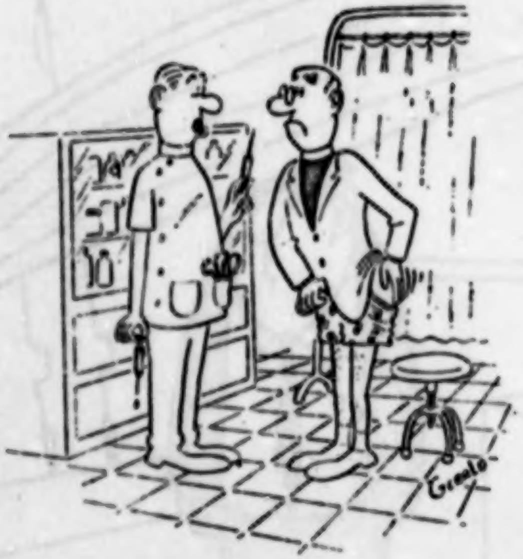
1



"Now, what went wrong at the office today?"

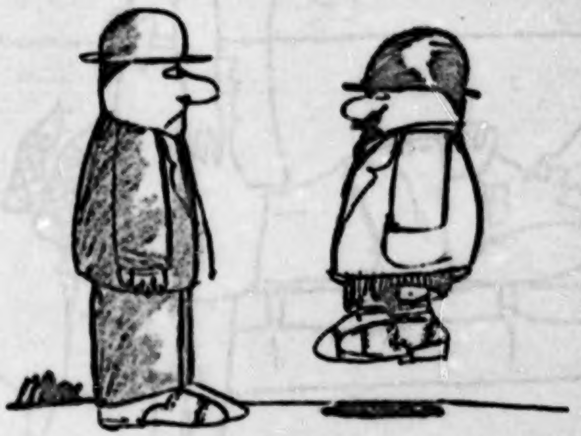
2

39



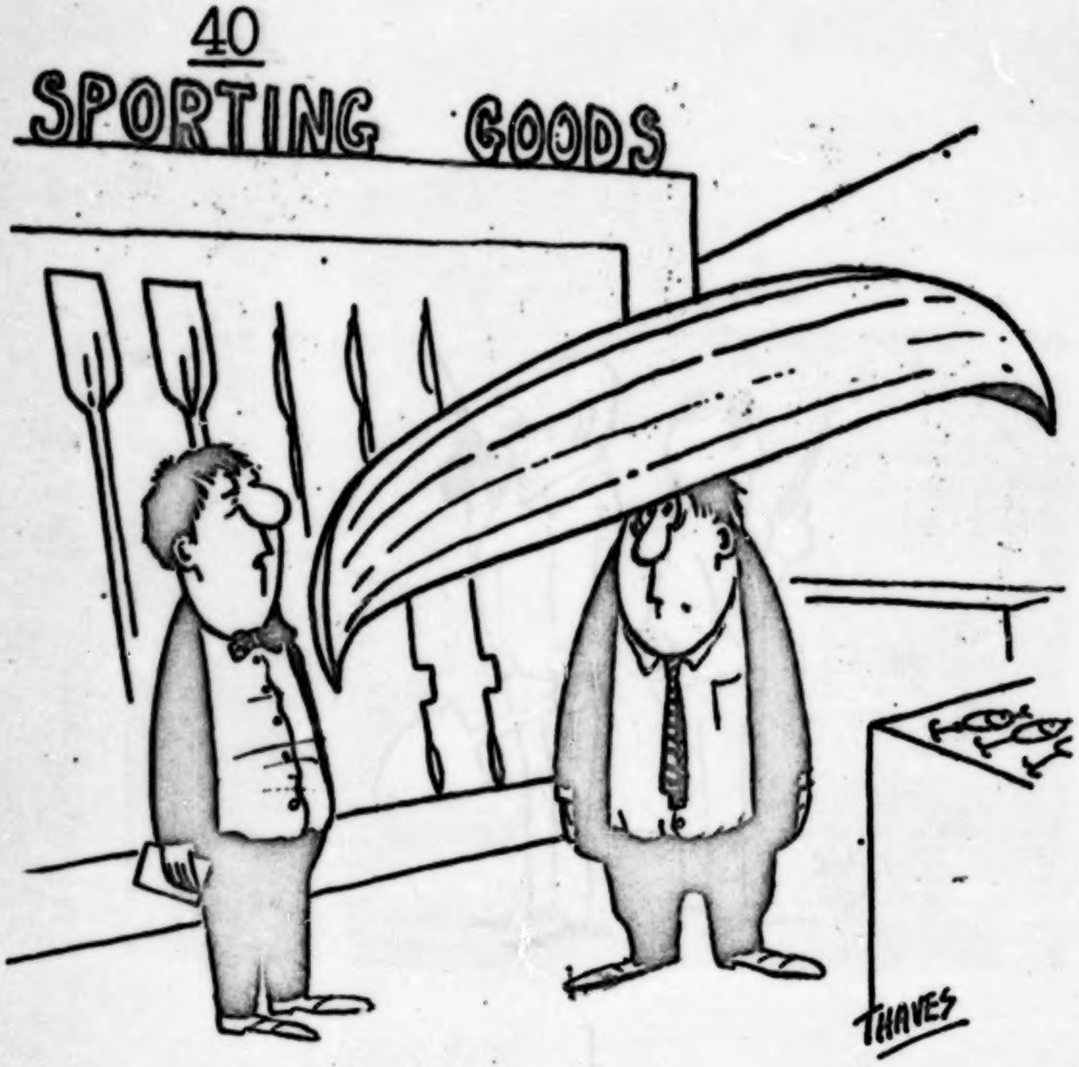
"Turn thy other cheek."

1



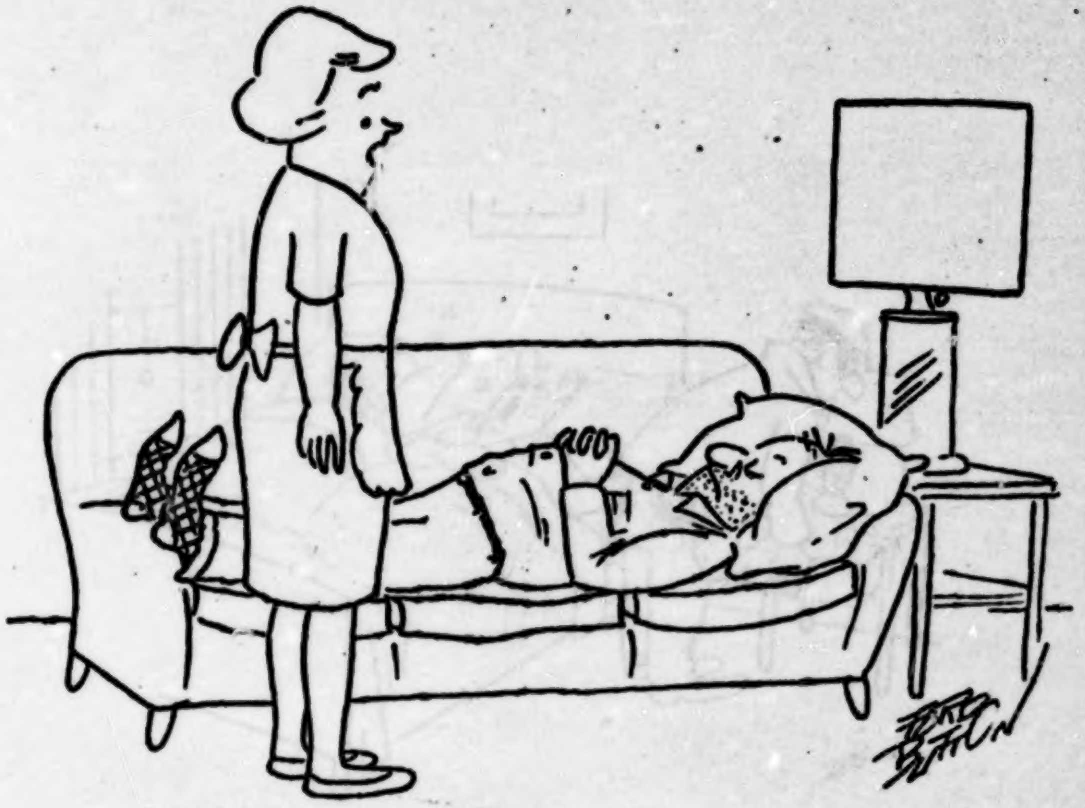
"My suspenders are too tight."

2


40
SPORTING GOODS
THAVES

"Now, if that feels a little snug, we'll try a size larger!"

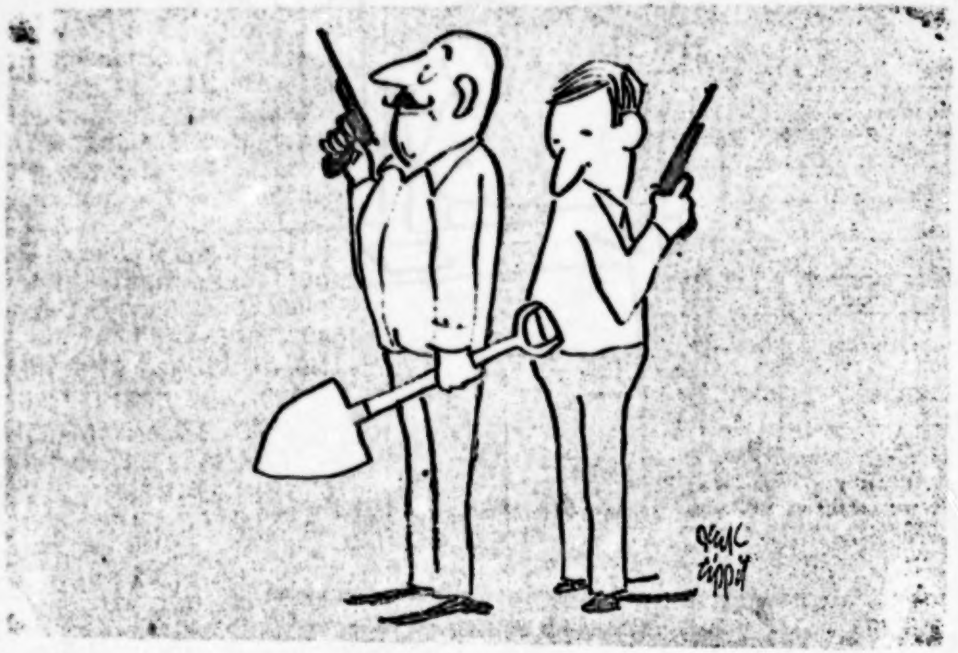
1



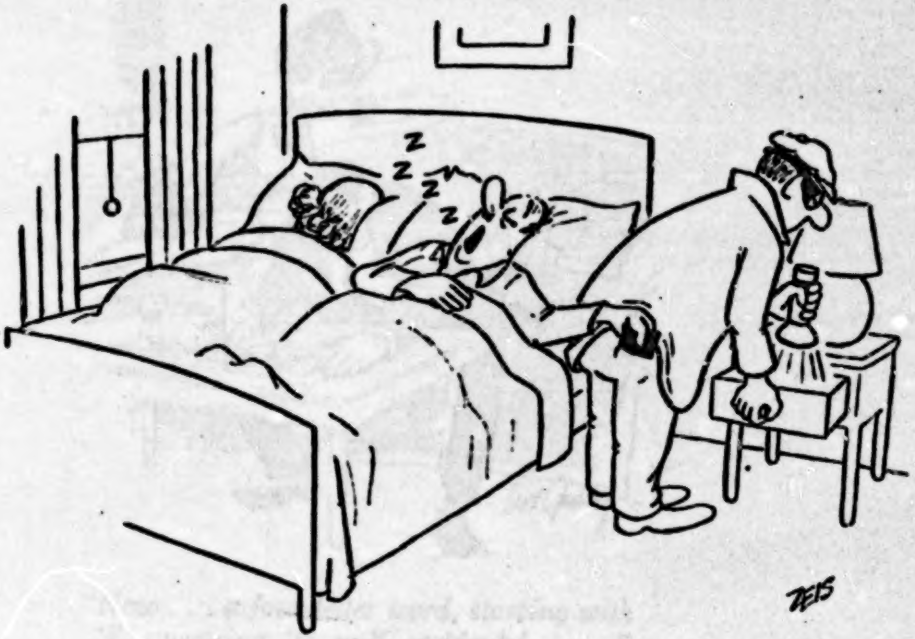
"I know the doctor told you to relax, but that was four years ago!"

2

41

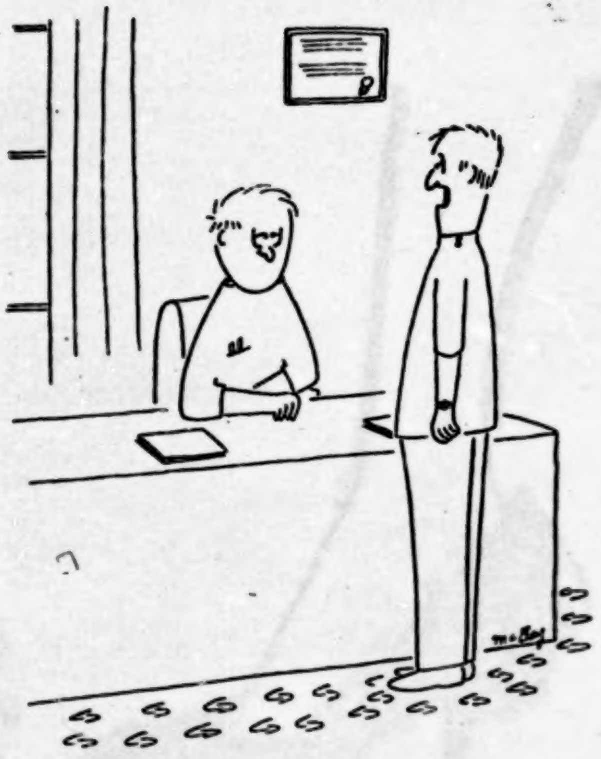


1



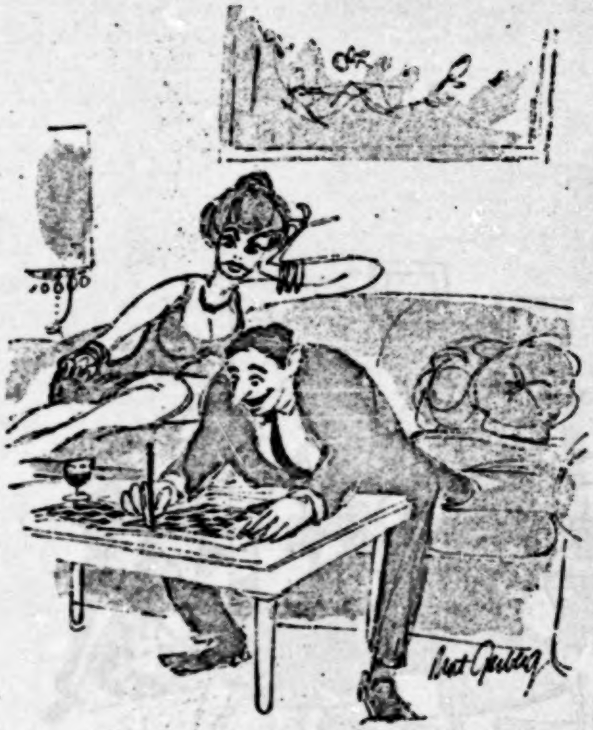
2

42



"I found out why the head nurse has been spending so much time at her desk. She's dead."

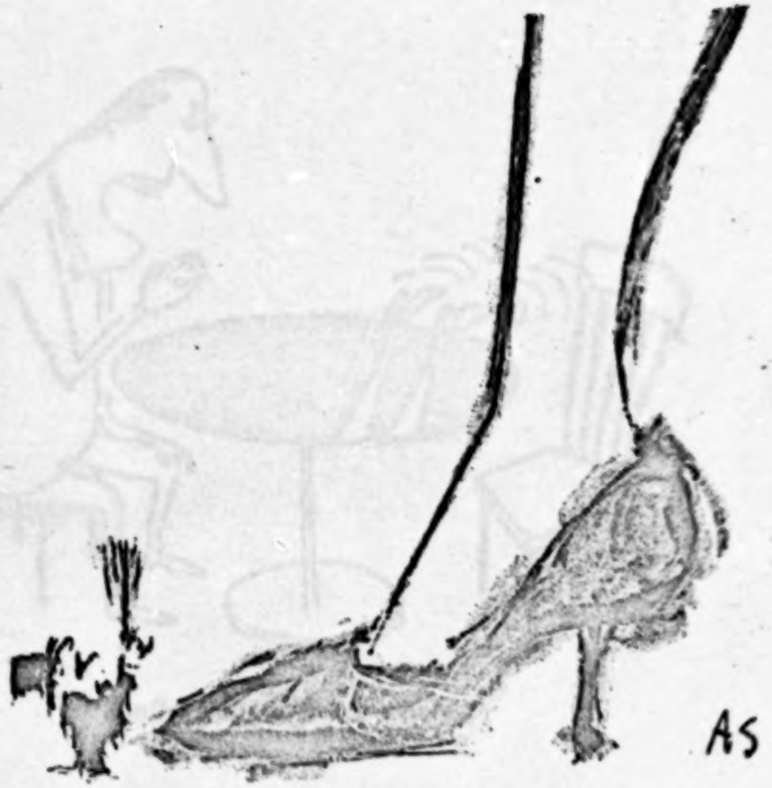
1



"Now . . . a four-letter word, starting with 'j', meaning 'to pull suddenly'. . . ."

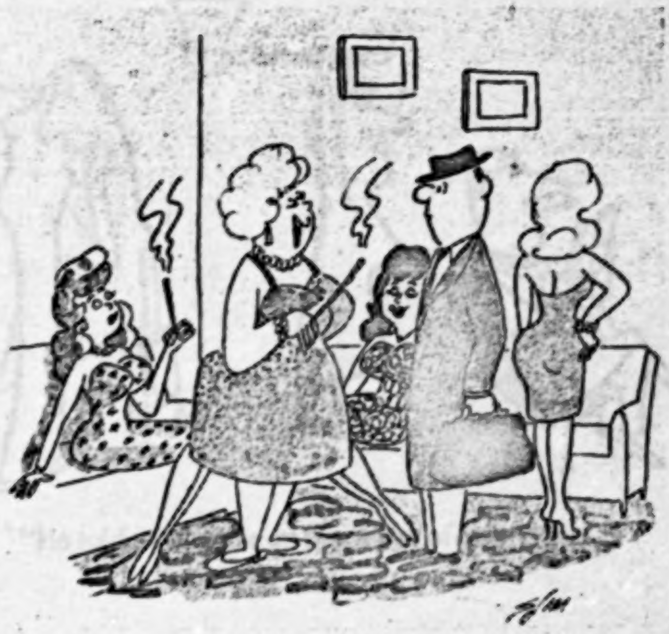
2

43



"Admit it—you married me for my money!"

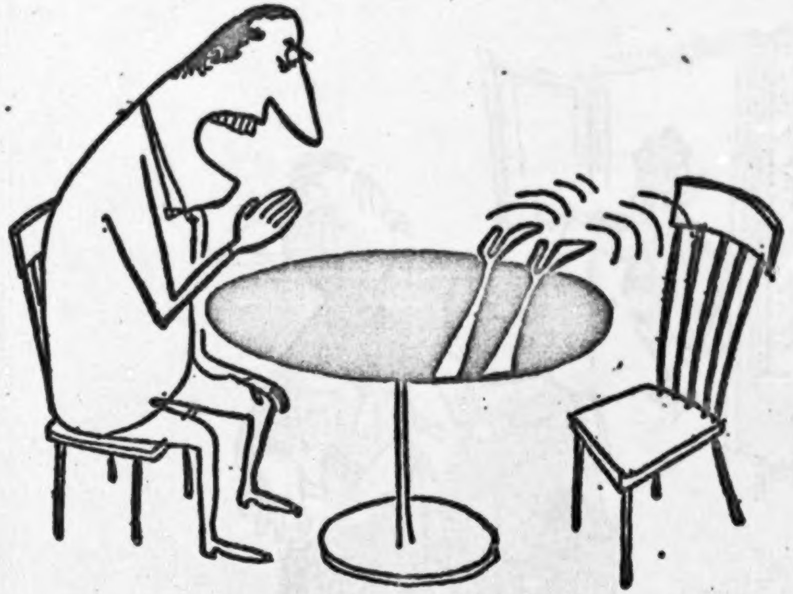
1



"We don't see much of you between checkups, big boy."

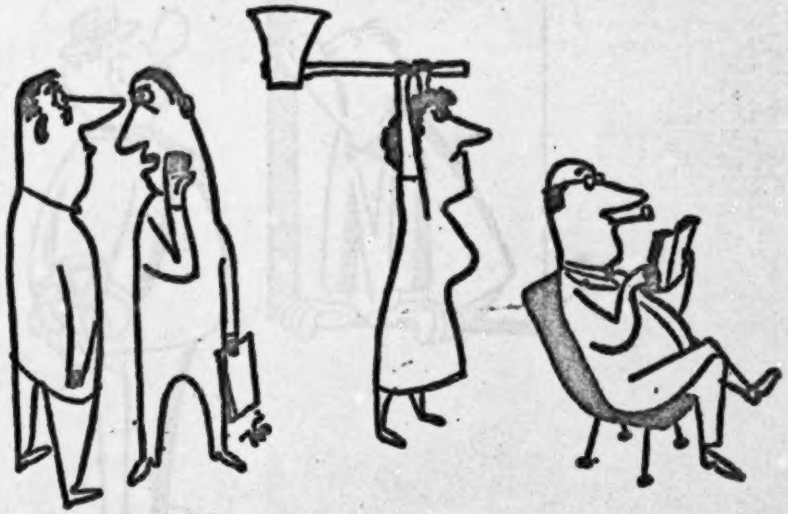
2

44



"See? I *told* you it was a hole."

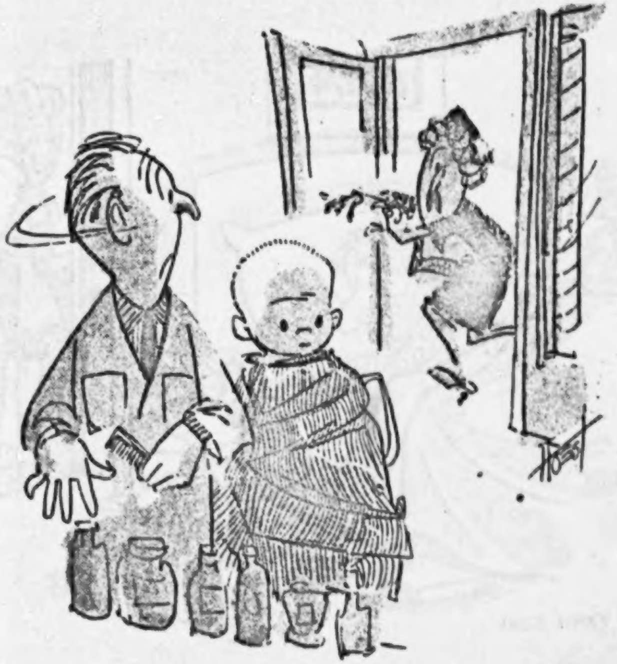
1



"He told me they're on the verge of splitting up."

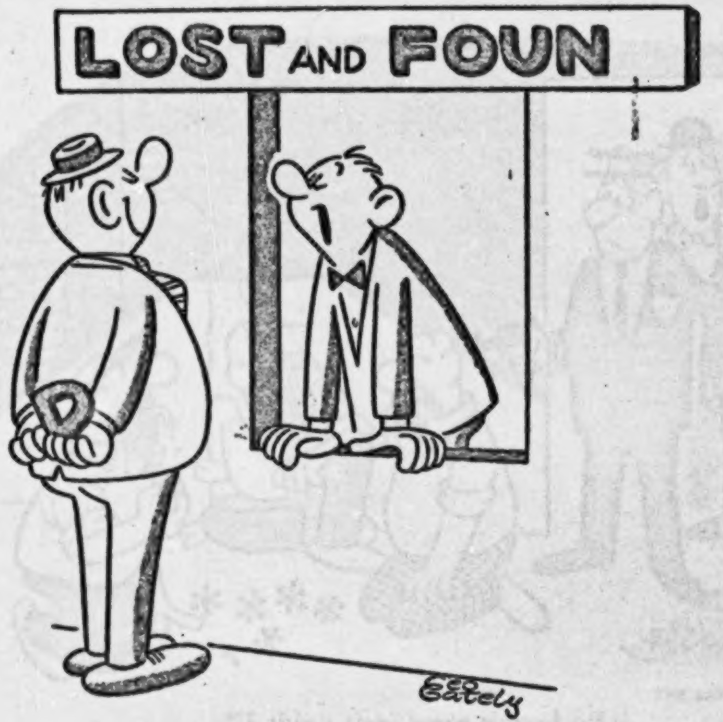
2

45



"Angela!"

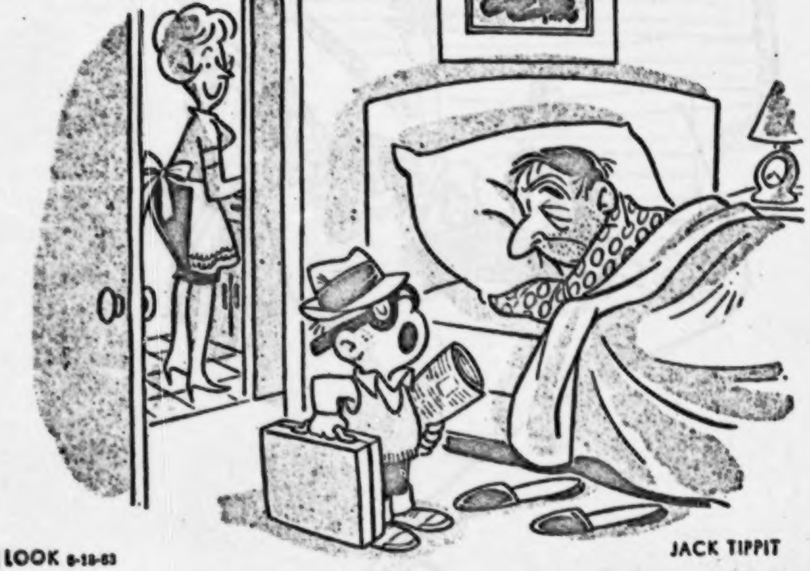
1


LOST AND FOUN

"Yes?"

2

46

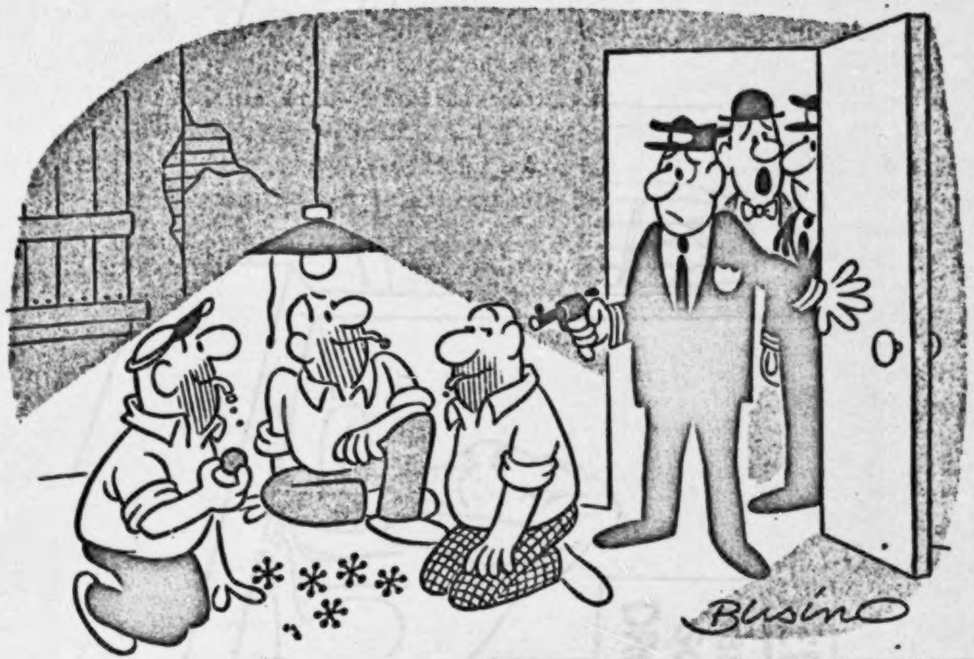


LOOK 8-13-63

JACK TIPPIT

"Everybody out for the rat race!"

1



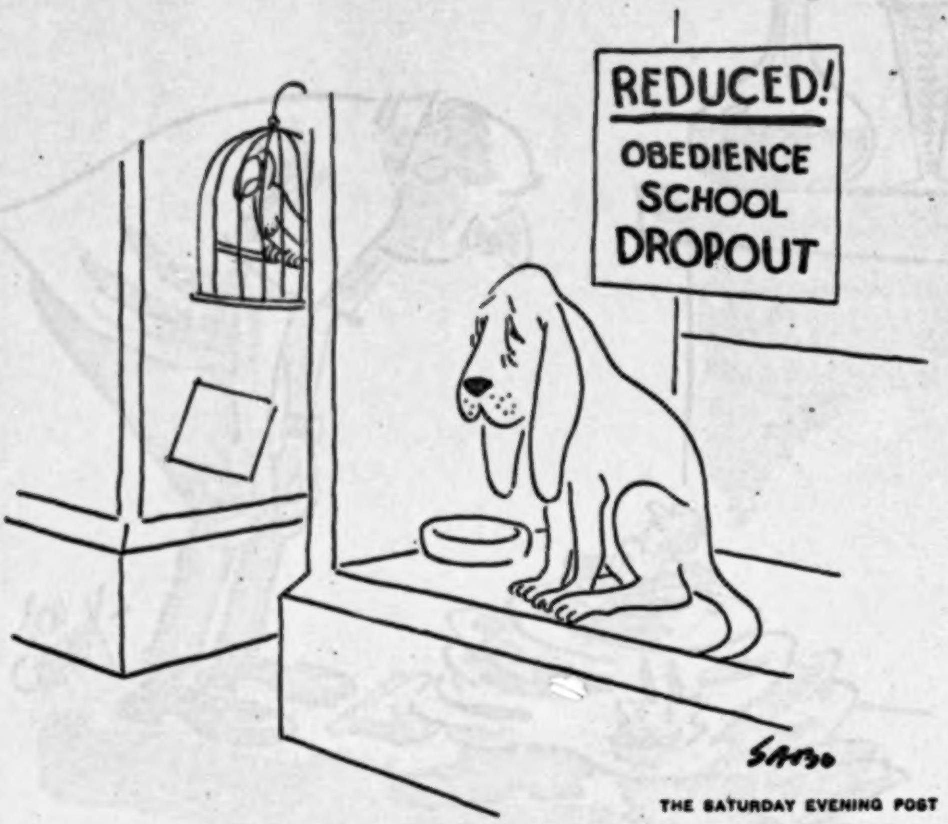
THE SATURDAY EVENING POST

"I think they were tipped off."

2

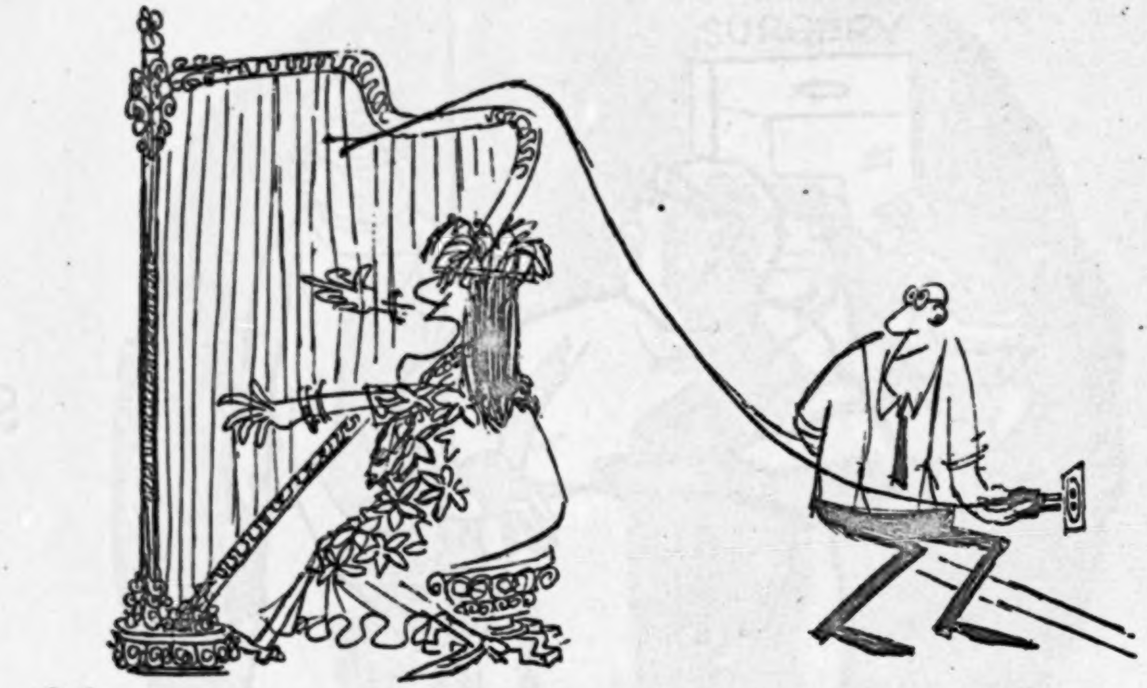
47

1


REDUCED!
OBEDIENCE SCHOOL DROPOUT
SABO

THE SATURDAY EVENING POST

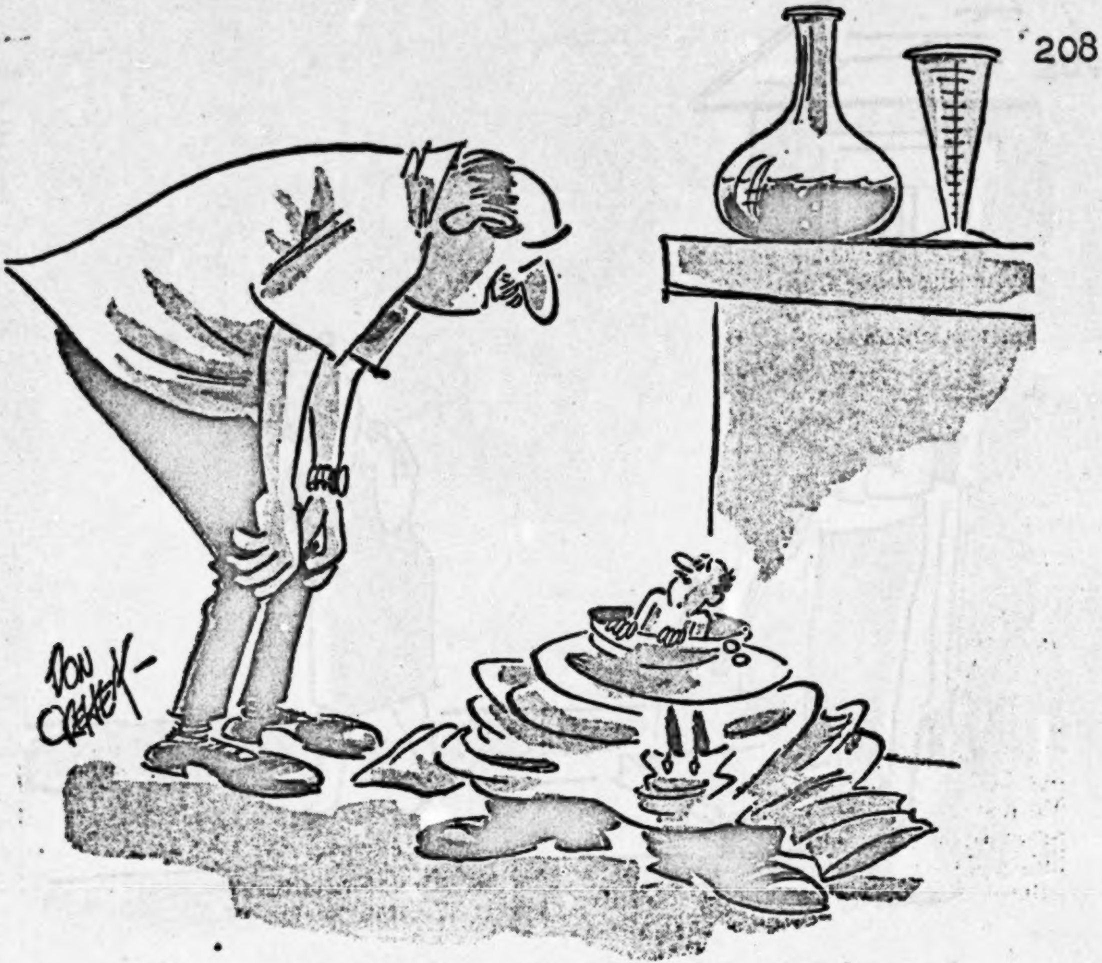
2



208

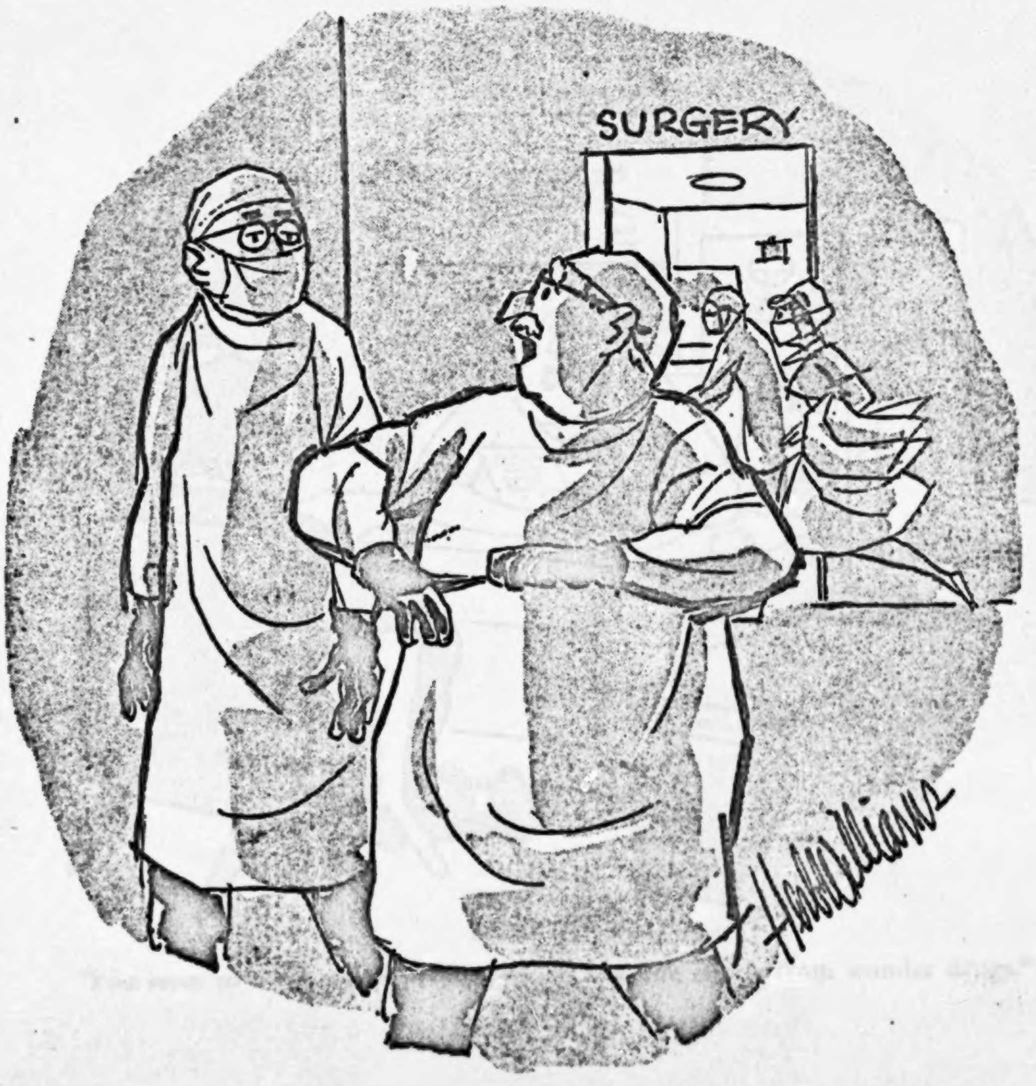
48

1



"Forgetting the side effects for a moment, how's the headache?"

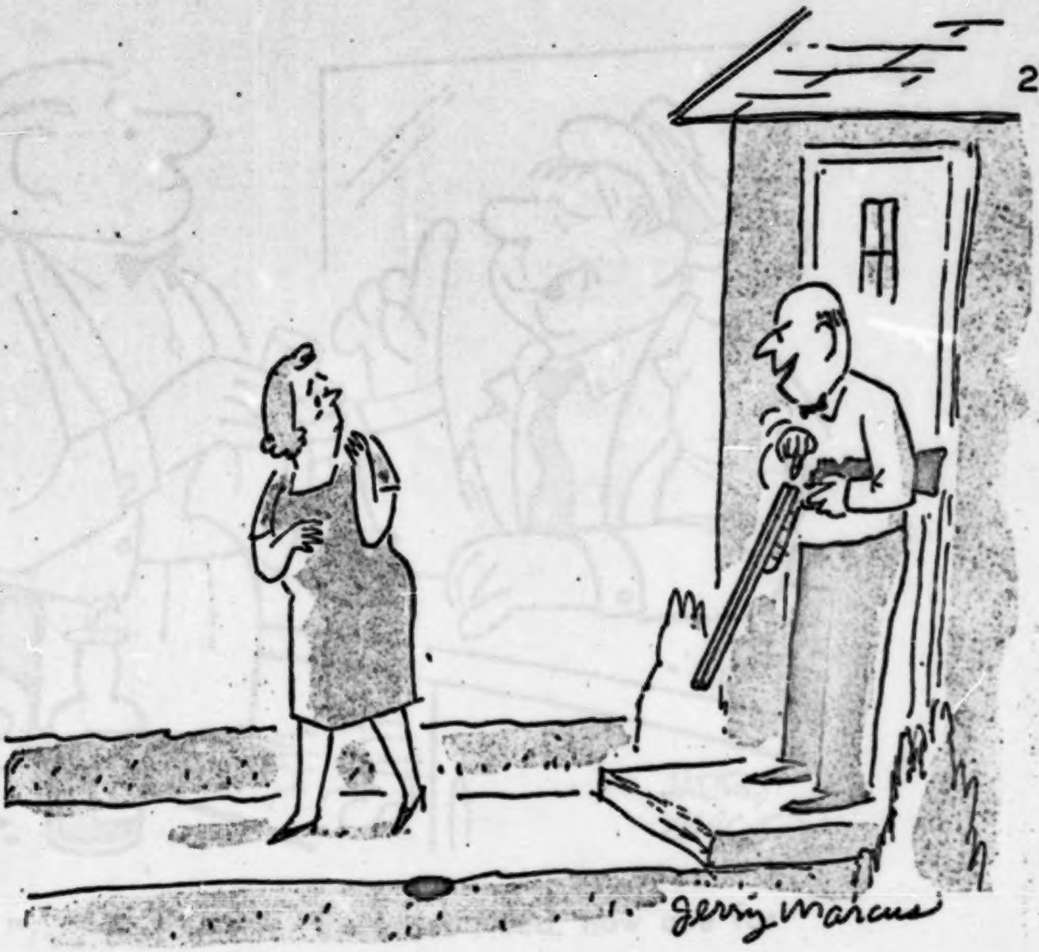
2



"That was close . . . I was a heartbeat away from an unpaid bill."

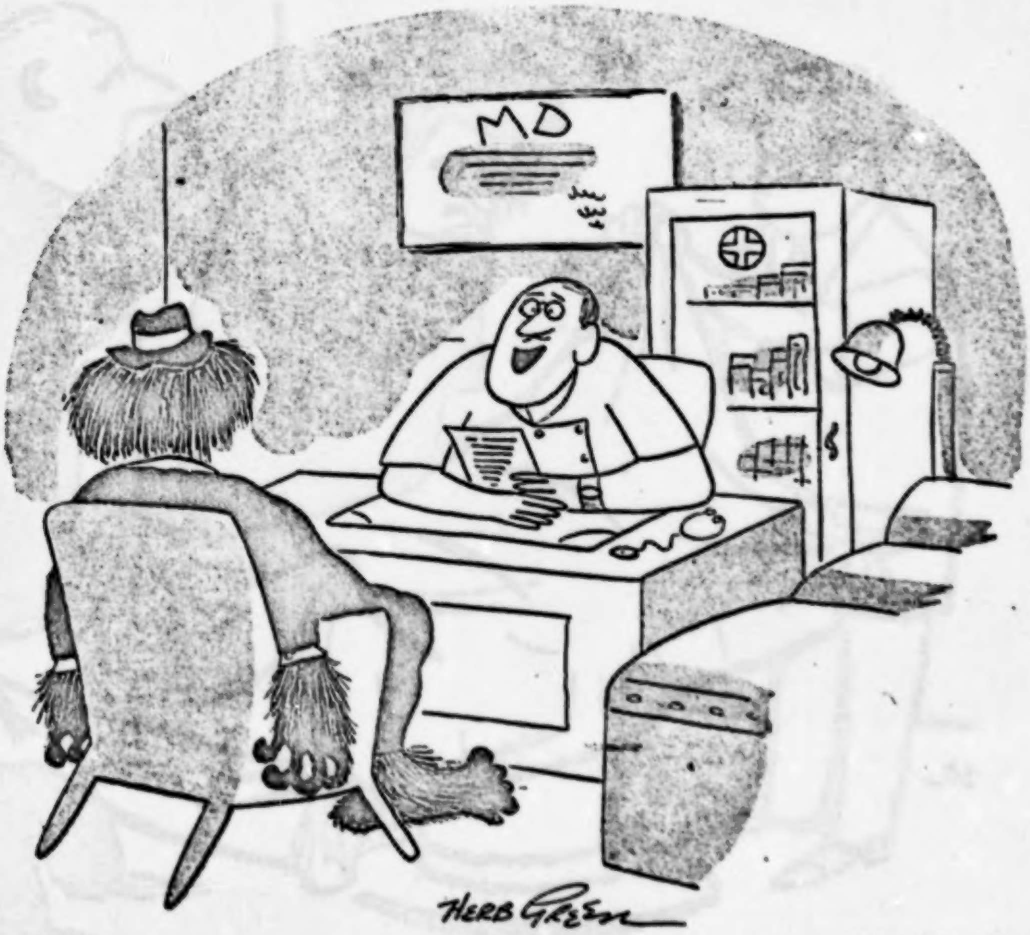
49

1


Jerry Marcus

"What's so cruel about it? Two hundred yards is a helluva start."

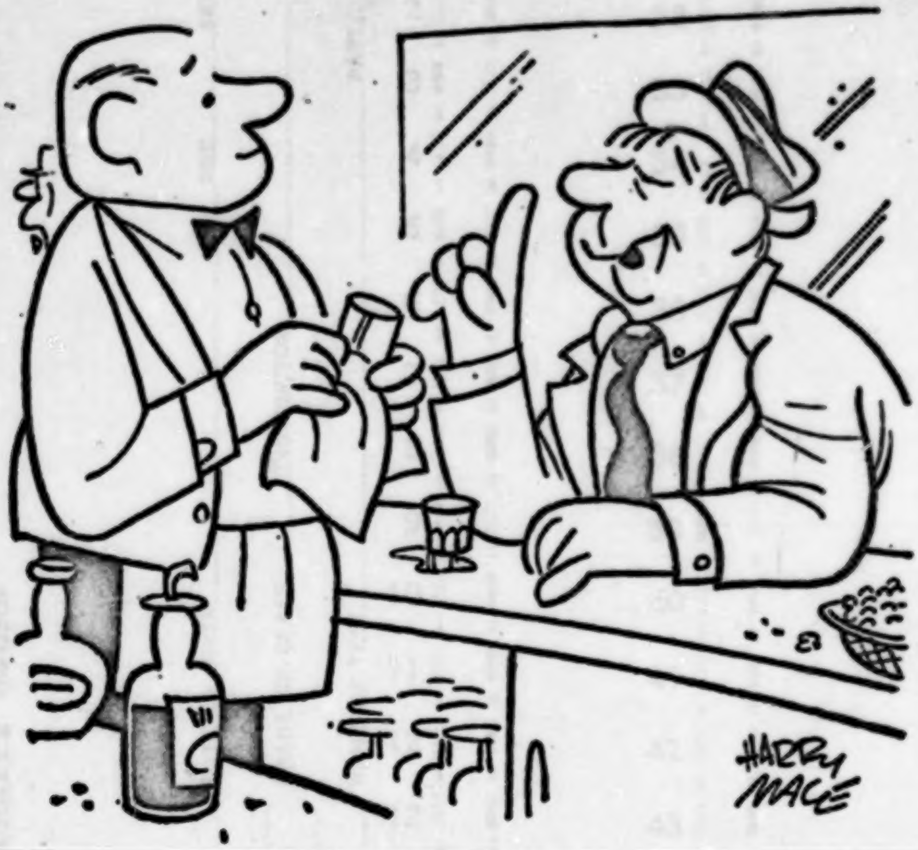
2


MD
HERB GREEN

"You seem to be that one percent which has side effects from wonder drugs."

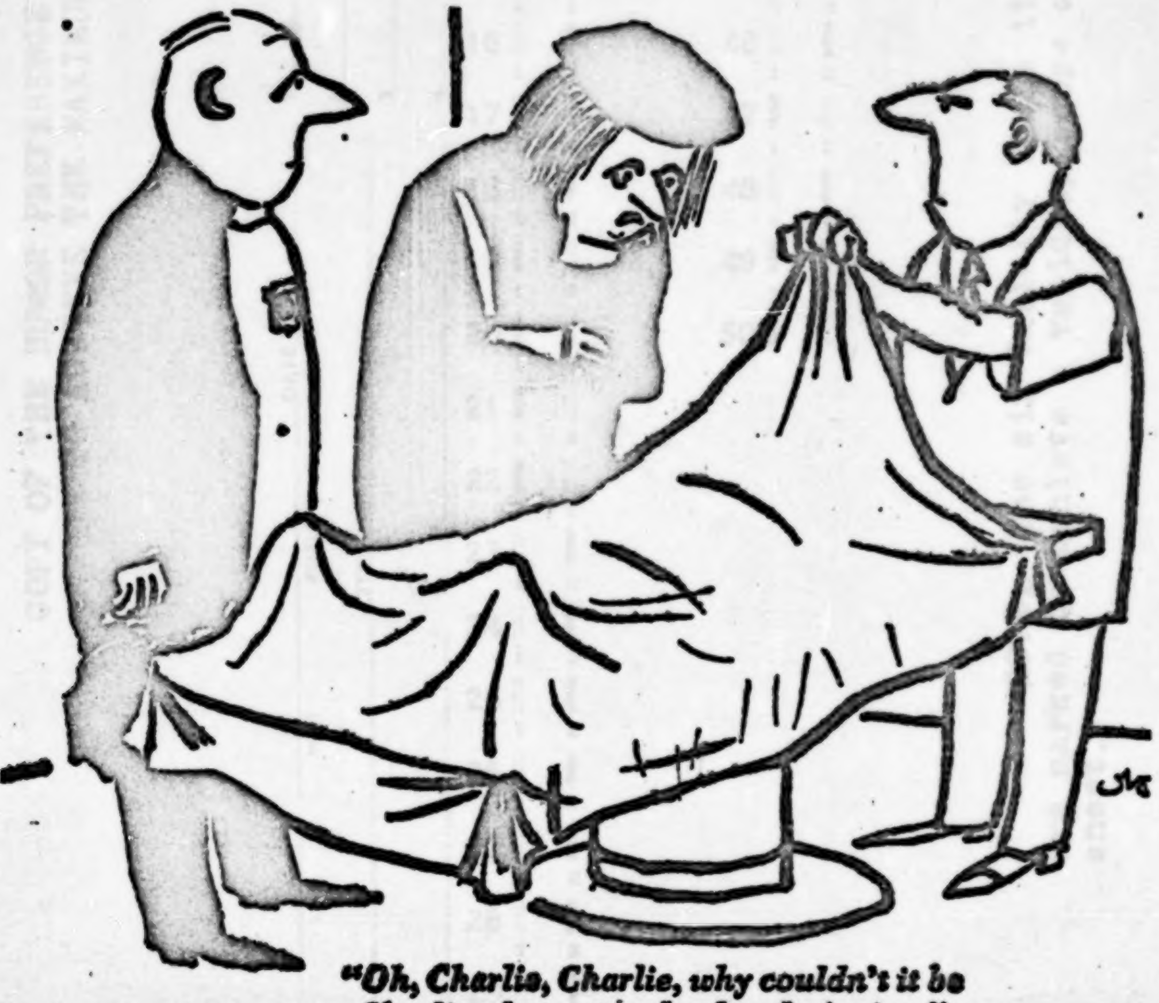
50

1



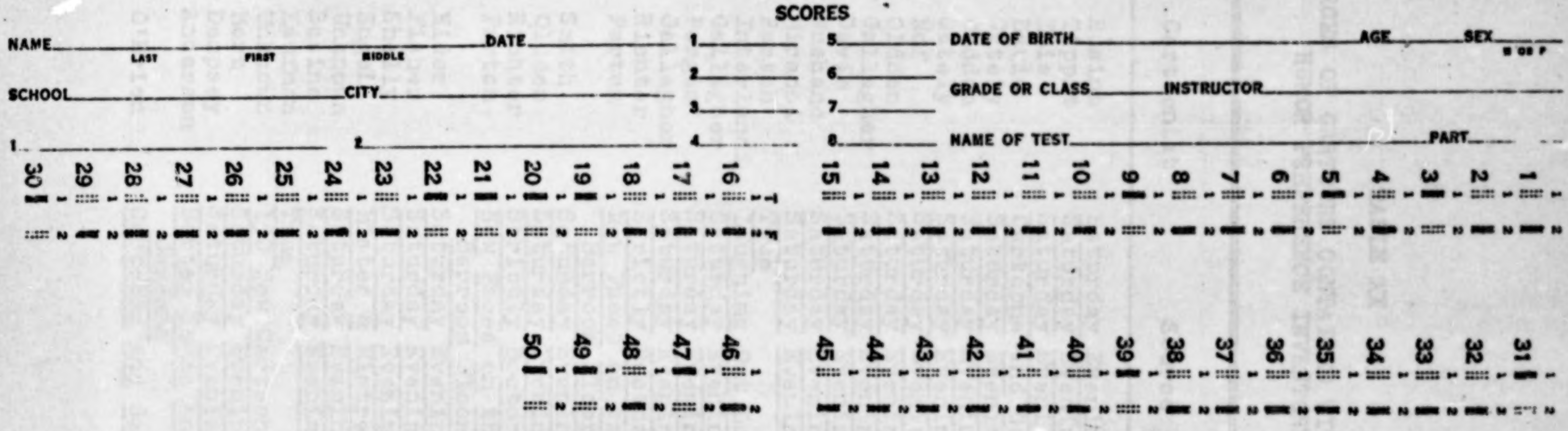
". . . that was for Limerock Road, now one for Berkley Drive . . ."

2



"Oh, Charlie, Charlie, why couldn't it be Charlie, that rotten husband of mine."

COPY OF THE HUMOR PREFERENCE INVENTORY ANSWER SHEET MARKED TO ACHIEVE THE MAXIMUM NON-CONFORMITY SCORE



NAME ________ LAST ________ FIRST ________ MIDDLE ________ DATE ________

SCHOOL ________ CITY ________

1. ________ 2. ________

SCORES

1. ________ 2. ________ 3. ________ 4. ________

5. ________ 6. ________ 7. ________ 8. ________

DATE OF BIRTH ________ AGE ________ SEX ________ M OR F

GRADE OR CLASS ________ INSTRUCTOR ________

NAME OF TEST ________ PART ________

	1	2
1	○	●
2	○	●
3	●	○
4	○	●
5	●	○
6	○	●
7	○	●
8	○	●
9	●	○
10	○	●
11	○	●
12	○	●
13	○	●
14	○	●
15	○	●

	T	F
16	○	●
17	○	●
18	○	●
19	●	○
20	●	○
21	●	○
22	●	○
23	○	●
24	○	●
25	○	●
26	○	●
27	○	●
28	○	●
29	○	●
30	●	○

	1	2
31	●	○
32	○	●
33	○	●
34	○	●
35	○	●
36	○	●
37	○	●
38	○	●
39	●	○
40	○	●
41	○	●
42	○	●
43	○	●
44	○	●
45	○	●
46	○	●
47	●	○
48	○	●
49	●	○
50	●	○

NOTE: The six Validity Scale items, i.e., numbers 6, 11, 17, 29, 41, and 46 are marked to achieve a validity score of zero indicating a presumably valid answer sheet.

TABLE XX

SOURCES OF CARTOONS CONTAINED WITHIN THE HUMOR PREFERENCE INVENTORY

Item No.	Cartoon No.	Cartoonist	Source	Date
1	1	Busino	*Saturday Evening Post*	10/5/63
	2	Tippit	*Saturday Evening Post*	11/23/63
2	1	Zeis	*Saturday Evening Post*	11/4/61
	2	Davie	*Cartoons and Gags*	2/64
3	1	Gately	*Saturday Evening Post*	2/29/64
	2.	Oldden	*Saturday Evening Post*	8/10/63
4	1	Gately	*Saturday Evening Post*	11/23/63
	2	Nof	*Saturday Evening Post*	3/30/63
5	1	Oldden	*Saturday Evening Post*	9/21/63
	2	Gallagher	*Saturday Evening Post*	11/30/63
6	1	Davie	*Saturday Evening Post*	4/18/64
	2	Nushand	*Saturday Evening Post*	4/18/64
7	1	Mirachi	*Saturday Evening Post*	12/7/63
	2	Partch	*True*	9/63
8	1	Interlandi	*Laughing Out Loud*	12/63
	2	Gallagher	*Saturday Evening Post*	8/24/63
9	1	Porges	*Saturday Evening Post*	2/2/63
	2	Gallagher	*Saturday Evening Post*	11/23/63
10	1	Richter	*Strictly Doctors*	6/63
	2	Partch	*New Faces on the Barroom Floor*	8/62
11	1	Smith	*Saturday Evening Post*	11/9/63
	2	Oldden	*Saturday Evening Post*	4/4/64
12	1	Richter	*Strictly Doctors*	6/63
	2	Partch	*New Faces on the Barroom Floor*	8/62
13	1	Hider	*Saturday Evening Post*	6/8/63
	2	Fisher	*Saturday Evening Post*	9/14/63
14	1	Shelly	*Saturday Evening Post*	12/9/61
	2	Engel	*Mister & Mistress*	9/63
15	1	Unknown	*Saturday Evening Post*	12/14/63
	2	Busino	*Saturday Evening Post*	11/30/63
16	1	Kaufman	*True*	8/63
	2	Unknown	*150 New Cartoons*	No. 5
17	1	Merz	*Saturday Evening Post*	6/15/63
	2	Dempsey	*Saturday Evening Post*	11/4/61
18	1	Anderson	*Better Homes and Gardens*	8/63
	2	O'Brien	*Cartoons and Gags*	2/64

TABLE XX (continued)

Item No.	Cartoon No.	Cartoonist	Source	Date
19	1	Baginski	Saturday Evening Post	10/26/63
	2	Day	Saturday Evening Post	6/10/61
20	1	Zeis	Saturday Evening Post	6/9/62
	2	Partch	New Faces on the Barroom Floor	8/62
21	1	Keyes	Mister & Mistress	9/63
	2	Richter	Strictly Doctors	6/63
22	1	Green	Saturday Evening Post	1/6/62
	2	Habbick	Saturday Evening Post	11/23/63
23	1	Richter	Strictly Doctors	6/63
	2	Unknown	She Drives 'Em Crazy	7/63
24	1	Zeis	Saturday Evening Post	10/1/63
	2	Tobey	Saturday Evening Post	4/20/63
25	1	Glass	Saturday Evening Post	5/30/64
	2	Ridgeway	Man's Magazine	8/63
26	1	Bonestell	Cartoons and Gags	2/64
	2	Johns	Saturday Evening Post	3/28/64
27	1	Mace	Saturday Evening Post	3/2/63
	2	Sabo	Saturday Evening Post	3/2/63
28	1	Minahan	Saturday Evening Post	6/15/63
	2	Murphy	Cartoons and Gags	2/64
29	1	Oldden	Saturday Evening Post	5/16/64
	2	Ericson	Saturday Evening Post	11/9/64
30	1	Blanchard	Saturday Evening Post	6/6/63
	2	Unknown	Saturday Evening Post	11/25/61
31	1	Dennis	Cartoons and Gags	2/64
	2	Unknown	The New Physician	9/63
32	1	Richter	Strictly Doctors	6/63
	2	de Carlo	Mister & Mistress	6/63
33	1	Dahlin	Saturday Evening Post	6/12/63
	2	Minahan	True	11/63
34	1	Richter	Strictly Doctors	6/63
	2	Dennis	Mister & Mistress	9/63
35	1	Engel	Saturday Evening Post	6/29/63
	2	Day	Saturday Evening Post	1/6/62
36	1	Keate	Saturday Evening Post	4/20/63
	2	Reilly	True	10/63
37	1	Jamis	Cartoons and Gags	2/64
	2	Atkins	Cartoons and Gags	2/64
38	1	Gallagher	Saturday Evening Post	3/21/64
	2	O'Brian	Saturday Evening Post	10/5/63

TABLE XX (continued)

Item No.	Cartoon No.	Cartoonist	Source	Date
39	1	Gerald	*The New Physician*	4/63
	2	Unknown	*Saturday Evening Post*	4/20/63
40	1	Thaves	*150 New Cartoons*	No. 5
	2	Button	*150 New Cartoons*	No. 5
41	1	Tippit	*Saturday Evening Post*	6/15/63
	2	Zeis	*Saturday Evening Post*	6/3/61
42	1	McBay	*The New Physician*	4/63
	2	Geiberg	*Saturday Evening Post*	2/29/64
43	1	As	*Saturday Evening Post*	4/14/64
	2	Slim	*The New Physician*	9/63
44	1	Partch	*New Faces on the Barroom Floor*	8/62
	2	Partch	*New Faces on the Barroom Floor*	8/62
45	1	Hoest	*Saturday Evening Post*	2/8/64
	2	Gately	*Saturday Evening Post*	2/1/64
46	1	Tippit	*Look*	6/18/63
	2	Busino	*Saturday Evening Post*	3/7/64
47	1	Sabo	*Saturday Evening Post*	9/28/63
	2	Fotis	*True*	1/64
48	1	O'Reilly	*True*	1/64
	2	Williams	*True*	12/63
49	1	Marcus	*True*	1/64
	2	Green	*True*	12/63
50	1	Mace	*Laff Time*	1/64
	2	Unknown	*Cartoons and Gags*	2/64

NOTE: The year of publication is the same as the copyright year with two exceptions. Both the Green and the Day cartoons from the 1/6/62 issue of the *Saturday Evening Post* were copyrighted in 1961.

APPENDIX E

STATISTICAL DATA RELEVANT TO TESTING THE INFLUENCE OF AGE UPON THE RESPONSES TO THE TEN PER CENT LEVEL HPI ITEMS

TABLE XXI

SUMS AND MEANS OF THE CRITERION AND AGE VARIABLE

	Number n	Criterion .10 Level Items ΣY	$\bar{Y}$	Control Age ΣX_1	$\bar{X}_1$
Conform.	57	1066	18.70	10784	189.19
Non-Con.	49	1120	22.86	9422	192.29
Total	106	2186	20.62	20206	190.62

TABLE XXII

SUMS OF SQUARES AND CROSSPRODUCT

Scores	Symbol	Total for Entire Sample
.10 Level Items	ΣY^2	48,020
Age In Months	ΣX_1^2	3,857,050
Crossproduct	$\Sigma X_1 Y$	417,456

TABLE XXIII

SUMS OF SQUARES AND CROSSPRODUCT IN DEVIATION FORM

Source of Variation	Σy^2	Σx_1^2	$\Sigma x_1 y$
Total	2938.90	5329.00	754.91
Within Subgroups	2483.93	5077.00	416.29

TABLE XXIV

TEST OF SIGNIFICANCE OF THE INFLUENCE OF AGE UPON THE RESPONSES TO THE TEN PER CENT LEVEL HPI ITEMS

Source of Variation	Residuals		
	Degrees of Freedom	Sum of Squares	Mean Square
Total	104	2831.97	
Within Subgroups	103	2449.80	23.78
Difference	1	382.17	382.17

$F_{1,103} = 16.07$ $t = \sqrt{F} = 4.01$***

***Statistically significant at the .001 level. A t-value of 3.49 was required for 53 degrees of freedom.

NOTE: The regression equations used in computing the sums of squares of residuals for total and within subgroups were $y = .141660_{x_1}$ and $y = .081995_{x_1}$ respectively.

APPENDIX F

STATISTICAL DATA RELEVANT TO TESTING THE INFLUENCE OF AGE UPON THE RESPONSES TO THE FIVE PER CENT LEVEL HPI ITEMS

TABLE XXV

SUMS AND MEANS OF THE CRITERION AND AGE VARIABLE

	Number	Criterion .05 Level Items		Control Age	
	n	ΣY	$\bar{Y}$	ΣX_1	$\bar{X}_1$
Conform.	57	621	10.89	10784	189.19
Non-Con.	49	685	13.98	9422	192.29
Total	106	1306	12.32	20206	190.62

TABLE XXVI

SUMS OF SQUARES AND CROSSPRODUCT

Scores	Symbol	Total for Entire Sample
.05 Level Items	ΣY^2	17,416
Age In Months	ΣX_1^2	3,857,050
Crossproduct	$\Sigma X_1 Y$	249,145

TABLE XXVII

SUMS OF SQUARES AND CROSSPRODUCT IN DEVIATION FORM

Source of Variation	Σy^2	Σx_1^2	$\Sigma x_1 y$
Total	1325.09	5329.00	191.84
Within Subgroups	1074.34	5077.00	-59.55

TABLE XXVIII

TEST OF SIGNIFICANCE OF THE INFLUENCE OF AGE UPON THE RESPONSES TO THE FIVE PER CENT LEVEL HPI ITEMS

Source of Variation	Residuals		
	Degrees of Freedom	Sum of Squares	Mean Square
Total	104	1318.19	
Within Subgroups	103	1073.65	10.42
Difference	1	244.54	244.54

$F_{1,103} = 23.46$ $\quad$ $t = \sqrt{F} = 4.84$***

***Statistically significant at the .001 level. A t-value of 3.49 was required for 53 degrees of freedom.

NOTE: The regression equations used in computing the sums of squares of residuals for total and within subgroups were $y = .035999_{x_1}$ and $y = -.011729_{x_1}$ respectively.

APPENDIX G

STATISTICAL DATA RELEVANT TO TESTING THE INFLUENCE OF AGE UPON THE RESPONSES TO THE ONE PER CENT LEVEL HPI ITEMS

TABLE XXIX

SUMS AND MEANS OF THE CRITERION AND AGE VARIABLE

	Number	Criterion .01 Level Items		Control Age	
	n	ΣY	$\bar{Y}$	ΣX_1	$\bar{X}_1$
Conform.	57	230	4.04	10784	189.19
Non-Con.	49	272	5.55	9422	192.29
Total	106	502	4.74	20206	190.62

TABLE XXX

SUMS OF SQUARES AND CROSSPRODUCT

Scores	Symbol	Total for Entire Sample
.01 Level Items	ΣY^2	2,772
Age in Months	ΣX_1^2	3,857,050
Crossproduct	$\Sigma X_1 Y$	95,743

TABLE XXXI

SUMS OF SQUARES AND CROSSPRODUCT IN DEVIATION FORM

Source of Variation	Σy^2	Σx_1^2	$\Sigma x_1 y$
Total	394.60	5329.00	50.43
Within Subgroups	334.05	5077.00	-73.09

TABLE XXXII

TEST OF SIGNIFICANCE OF THE INFLUENCE OF AGE UPON THE RESPONSES TO THE ONE PER CENT LEVEL HPI ITEMS

Source of Variation	Residuals		
	Degrees of Freedom	Sum of Squares	Mean Square
Total	104	394.13	
Within Subgroups	103	333.00	3.23
Difference	1	61.13	61.13

$$F_{1,102} = \frac{61.13}{3.23} = 18.91 \qquad t = \sqrt{F} = 4.35^{***}$$

***Statistically significant at the .001 level. A t-value of 3.49 was required for 53 degrees of freedom.

NOTE: The regression equations used in computing the sums of squares of residuals for total and within subgroups were $y = .009464_{x_1}$ and $y = -.014398_{x_1}$ respectively.

APPENDIX H

STATISTICAL DATA RELEVANT TO TESTING THE INFLUENCE OF AGE UPON THE RESPONSES TO THE WEIGHTED HPI ITEMS

TABLE XXXIII

SUMS AND MEANS OF THE CRITERION AND AGE VARIABLE

	Number n	Criterion W'td. HPI Items ΣY	Criterion W'td. HPI Items $\bar{Y}$	Control Age ΣX_1	Control Age $\bar{X}_1$
Conform.	57	1938	34.00	10784	189.19
Non-Con.	49	2125	43.37	9422	192.29
Total	106	4063	38.33	20206	190.62

TABLE XXXIV

SUMS OF SQUARES AND CROSSPRODUCT

Scores	Symbol	Total for Entire Sample
Weighted HPI Items	ΣY^2	167,259
Age in Months	ΣX_1^2	3,857,050
Crossproduct	$\Sigma X_1 Y$	775,689

TABLE XXXV

SUM OF SQUARES AND CROSSPRODUCT IN DEVIATION FORM

Source of Variation	Σy^2	Σx_1^2	$\Sigma x_1 y$
Total	11523.45	5329.00	1189.21
Within Subgroups	9211.39	5077.00	425.86

TABLE XXXVI

TEST OF SIGNIFICANCE OF THE INFLUENCE OF AGE UPON THE RESPONSES TO THE WEIGHTED HPI ITEMS

Source of Variation	Residuals Degrees of Freedom	Sums of Squares	Mean Square
Total	104	11258.07	
Within Subgroups	103	9175.67	89.08
Difference	1	2082.40	2082.40

$$F_{1,103} = \frac{2082.40}{89.08} = 23.38 \qquad t = \sqrt{F} = 4.83^{***}$$

***Statistically significant at the .001 level. A t-value of 3.49 was required for 53 degrees of freedom.

NOTE: The regression equations used in computing the sums of squares of residuals for total and within subgroups were $y = .223158_{x_1}$ and $y = .083880_{x_1}$ respectively.

APPENDIX I

STATISTICAL DATA RELEVANT TO TESTING THE INFLUENCE OF INTELLIGENCE UPON THE RESPONSES TO THE TEN PER CENT LEVEL HPI ITEMS

TABLE XXXVII

SUMS AND MEANS OF THE CRITERION AND INTELLIGENCE VARIABLE

	Number n	Criterion .10 Level Items		Control Intelligence	
		ΣY	$\bar{Y}$	ΣX_1	$\bar{X}_1$
Conform.	57	1066	18.70	6799	119.28
Non-Con.	49	1120	22.86	5215	106.43
Total	106	2186	20.62	12014	113.34

TABLE XXXVIII

SUMS OF SQUARES AND CROSSPRODUCT

Scores	Symbol	Total for Entire Sample
.10 Level Items	ΣY^2	48,020
CTMM IQ Scores	ΣX_1^2	1,378,196
Crossproduct	$\Sigma X_1 Y$	244,594

TABLE XXXIX

SUMS OF SQUARES AND CROSSPRODUCT IN DEVIATION FORM

Source of Variation	Σy^2	Σx_1^2	$\Sigma x_1 y$
Total	2938.90	16533.90	-3166.41
Within Subgroups	2483.93	12181.60	-1759.22

TABLE XL

TEST OF SIGNIFICANCE OF THE INFLUENCE OF INTELLIGENCE UPON THE RESPONSES TO THE TEN PER CENT LEVEL HPI ITEMS

Source of Variation	Degrees of Freedom	Residuals	
		Sum of Squares	Mean Square
Total	104	2332.51	
Within Subgroups	103	2229.87	21.65
Difference	1	102.64	102.64

$F = \frac{102.64}{21.65} = 4.74$ $t = \sqrt{F} = 2.18*$

*Statistically significant at the .05 level. A t-value of 2.01 was required for 53 degrees of freedom.

NOTE: The regression equations used in computing the sums of squares of residuals for total and within subgroups were $y = -.191510_{x1}$ and $y = -.144416_{x1}$ respectively.

APPENDIX J

STATISTICAL DATA RELEVANT TO TESTING THE INFLUENCE OF INTELLIGENCE UPON THE RESPONSES TO THE FIVE PER CENT LEVEL HPI ITEMS

TABLE XLI

SUMS AND MEANS OF THE CRITERION AND INTELLIGENCE VARIABLE

	Number n	Criterion .05 Level Items ΣY	$\bar{Y}$	Control Intelligence ΣX_1	$\bar{X}_1$
Conform.	57	621	10.89	6799	119.28
Non-Con.	49	685	13.98	5215	106.43
Total	106	1306	12.32	12014	113.34

TABLE XLII

SUMS OF SQUARES AND CROSSPRODUCT

Scores	Symbol	Total for Entire Sample
.05 Level Items	ΣY^2	17,416
CTMM IQ Scores	ΣX_1^2	1,378,196
Crossproduct	$\Sigma X_1 Y$	146,056

TABLE XLIII

SUMS OF SQUARES AND CROSSPRODUCT IN DEVIATION FORM

Source of Variation	Σy^2	Σx_1^2	$\Sigma x_1 y$
Total	1325.09	16533.90	-1965.54
Within Subgroups	1074.34	12181.60	-920.88

TABLE XLIV

TEST OF SIGNIFICANCE OF THE INFLUENCE OF INTELLIGENCE UPON THE RESPONSES TO THE FIVE PER CENT LEVEL HPI ITEMS

Source of Variation	Residuals Degrees of Freedom	 Sum of Squares	 Mean Square
Total	104	1091.43	
Within Subgroups	103	1004.73	9.75
Difference	1	86.70	86.70

$F = \frac{86.70}{9.75} = 8.89$ $\qquad t = \sqrt{F} = 2.98^{**}$

**Statistically significant at the .01 level. A t-value of 2.67 was required for 53 degrees of freedom.

NOTE: The regression equations used in computing the sums of squares of residuals for total and within subgroups were $y = -.118879_{x_1}$ and $y = -.075595_{x_1}$ respectively.

APPENDIX K

STATISTICAL DATA RELEVANT TO TESTING THE INFLUENCE OF INTELLIGENCE UPON THE RESPONSES TO THE ONE PER CENT LEVEL HPI ITEMS

TABLE XLV

SUMS AND MEANS OF THE CRITERION AND INTELLIGENCE VARIABLE

	Number n	Criterion .01 Level Items ΣY_1	$\bar{Y}$	Control Intelligence ΣX_1	$\bar{X}_1$
Conform.	57	230	4.04	6799	119.28
Non-Con.	49	272	5.55	5215	106.43
Total	106	502	4.74	12014	113.34

TABLE XLVI

SUMS OF SQUARES AND CROSSPRODUCT

Scores	Symbol	Total for Entire Sample
.01 Level Items	ΣY^2	2,772
CTMM IQ Scores	ΣX_1^2	1,378,196
Crossproduct	$\Sigma X_1 Y$	55,973

TABLE XLVII

SUMS OF SQUARES AND CROSSPRODUCT IN DEVIATION FORM

Source of Variation	Σy^2	Σx_1^2	$\Sigma x_1 y$
Total	394.60	16533.90	-923.49
Within Subgroups	334.05	12181.60	-410.13

TABLE XLVIII

TEST OF SIGNIFICANCE OF THE INFLUENCE OF INTELLIGENCE UPON THE RESPONSES TO THE ONE PER CENT LEVEL HPI ITEMS

	Residuals		
Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square
Total	104	343.02	
Within Subgroups	103	320.24	3.11
Difference	1	22.78	22.78

$F = \frac{22.78}{3.11} = 7.33$ $t = \sqrt{F} = 2.71$**

**Statistically significant at the .01 level. A t-value of 2.67 was required for degrees of freedom.

NOTE: The regression equations used in computing the sums of squares of residuals for total and within subgroups were $y = -.055854x_1$ and $y = -.033668x_1$ respectively.

APPENDIX L

STATISTICAL DATA RELEVANT TO TESTING THE INFLUENCE OF INTELLIGENCE UPON THE RESPONSES TO THE WEIGHTED HPI ITEMS

TABLE XLIX

SUMS AND MEANS OF THE CRITERION AND INTELLIGENCE VARIABLE

	Number	Criterion W'td. HPI Items		Control Intelligence	
	n	ΣY	$\bar{Y}$	ΣX_1	$\bar{X}_1$
Conform.	57	1938	34.00	6799	119.28
Non-Con.	49	2125	43.37	5215	106.43
Total	106	4063	38.33	12014	113.34

TABLE L

SUMS OF SQUARES AND CROSSPRODUCT

Scores	Symbol	Total for Entire Sample
Weighted HPI Items	ΣY^2	167,259
CTMM IQ Scores	ΣX_1^2	1,378,196
Crossproduct	$\Sigma X_1 Y$	454,167

TABLE LI

SUMS OF SQUARES AND CROSSPRODUCT IN DEVIATION FORM

Source of Variation	Σy^2	Σx_1^2	$\Sigma x_1 y$
Total	11523.45	16533.90	-6331.88
Within Subgroups	9211.39	12181.60	-3159.71

TABLE LII

TEST OF SIGNIFICANCE OF THE INFLUENCE OF INTELLIGENCE UPON THE RESPONSES TO THE WEIGHTED HPI ITEMS

Source of Variation	Residuals		
	Degrees of Freedom	Sum of Squares	Mean Square
Total	104	9098.57	
Within Subgroups	103	8391.81	81.47
Difference	1	706.76	706.76

$F = \frac{706.76}{81.47} = 8.67$ $\qquad t = \sqrt{F} = 2.95^{**}$

**Statistically significant at the .01 level. A t-value of 2.67 was required for 53 degrees of freedom.

NOTE: The regression equations used in computing the sums of squares of residuals for total and within subgroups were $y = -.382963_{x_1}$ and $y = -.259383_{x_1}$ respectively.

APPENDIX M

STATISTICAL DATA RELEVANT TO TESTING
THE INFLUENCE OF BOTH AGE AND INTELLIGENCE
UPON THE RESPONSES TO THE TEN PER CENT LEVEL HPI ITEMS

TABLE LIII

SUMS AND MEANS OF THE CRITERION AND CONTROL VARIABLES

	Number	Criterion .10 Level Items		Control *CTMM* IQ		Control Age	
	n	ΣY	$\overline{Y}$	ΣX_1	$\overline{X}_1$	ΣX_2	$\overline{X}_2$
Conform.	57	1066	18.70	6799	119.28	10784	189.19
Non-Con.	49	1120	22.86	5215	106.43	9422	192.29
Total	106	2186	20.62	12014	113.34	20206	190.62

TABLE LIV

SUMS OF SQUARES AND CROSSPRODUCTS

Scores	Symbol	Total for Entire Sample
.10 Level Items	ΣY^2	48,020
CTMM IQ Scores	ΣX_1^2	1,378,196
Age in Months	ΣX_2^2	3,857,050
Crossproducts	$\Sigma X_1 Y$	244,594
	$\Sigma X_2 Y$	417,456
	$\Sigma X_1 X_2$	2,285,302

TABLE LV

SUMS OF SQUARES AND CROSSPRODUCTS IN DEVIATION FORM

Source of Variation	Σy^2	Σx_1^2	Σx_2^2	$\Sigma x_1 y$	$\Sigma x_2 y$	$\Sigma x_1 x_2$
Total	2938.90	16533.90	5329.00	-3166.41	754.91	-4838.30
Within Subgroups	2483.93	12181.60	5077.00	-1759.22	416.29	-3791.00

TABLE LVI

TEST OF SIGNIFICANCE OF THE INFLUENCE OF INTELLIGENCE AND AGE UPON THE RESPONSES TO THE TEN PER CENT LEVEL HPI ITEMS

Source of Variation	Degrees of Freedom	Residuals Sum of Squares	Mean Square
Total	103	2324.97	
Within Subgroups	102	2225.45	21.81
Difference	1	99.52	99.52

$F_{1,102} = \frac{99.52}{21.81} = 4.56$ $\qquad t = \sqrt{F} = 2.14$*

*Statistically significant at the .05 level. A t-value of 2.01 was required for 53 degrees of freedom.

NOTE: The regression equations used in computing the sums of squares of residuals for total and within subgroups were $y = -.204348_{x1} -.043870_{x2}$ and $y = -.154892_{x1} -.033662_{x2}$ respectively.

APPENDIX N

STATISTICAL DATA RELEVANT TO TESTING THE INFLUENCE OF BOTH AGE AND INTELLIGENCE UPON THE RESPONSES TO THE FIVE PER CENT LEVEL HPI ITEMS

TABLE LVII

SUMS AND MEANS OF THE CRITERION AND CONTROL VARIABLES

	Number	Criterion .05 Level Items		Control CTMM IQ		Control Age	
	n	ΣY	$\bar{Y}$	ΣX_1	$\bar{X}_1$	ΣX_2	$\bar{X}_2$
Conform.	57	621	10.89	6799	119.28	10784	189.19
Non-Con.	49	685	13.98	5215	106.43	9422	192.29
Total	106	1306	12.32	12014	113.34	20206	190.62

TABLE LVIII

SUMS OF SQUARES AND CROSSPRODUCTS

Scores	Symbol	Total for Entire Sample
.05 Level Items	ΣY^2	17,416
CTMM IQ Scores	ΣX_1^2	1,378,196
Age in Months	ΣX_2^2	3,857,050
Crossproducts	$\Sigma X_1 Y$	146,056
	$\Sigma X_2 Y$	249,145
	$\Sigma X_1 X_2$	2,285,302

TABLE LIX

SUMS OF SQUARES AND CROSSPRODUCTS IN DEVIATION FORM

Source of Variation	Σx^2	Σx_1^2	Σx_2^2	$\Sigma x_1 y$	$\Sigma x_2 y$	$\Sigma x_1 x_2$
Total	1325.09	16533.90	5329.00	-1965.54	191.84	-4838.30
Within Subgroups	1074.34	12181.60	5077.00	-920.88	-59.55	-3791.00

TABLE LX

TEST OF SIGNIFICANCE OF THE INFLUENCE OF INTELLIGENCE AND AGE UPON THE RESPONSES TO THE FIVE PER CENT LEVEL HPI ITEMS

Source of Variation	Residuals Degrees of Freedom	Sum of Squares	Mean Square
Total	103	1053.88	
Within Subgroups	102	973.99	9.55
Difference	1	79.89	79.80

$$F_{1,102} = \frac{79.89}{9.55} = 8.37 \qquad t = \sqrt{F} = 2.89^{**}$$

**Statistically significant at the .01 level. A t-value of 2.67 was required for 53 degrees of freedom.

NOTE: The regression equations used in computing the sums of squares of residuals for total and within subgroups were $y = -.147545_{x1} - .097959_{x2}$ and $y = -.103236_{x1} - .088815_{x2}$ respectively.

APPENDIX O

STATISTICAL DATA RELEVANT TO TESTING THE INFLUENCE OF BOTH AGE AND INTELLIGENCE UPON THE RESPONSES TO THE ONE PER CENT LEVEL HPI ITEMS

TABLE LXI

SUMS AND MEANS OF THE CRITERION AND CONTROL VARIABLES

	Number n	Criterion .01 Level Items ΣY	$\bar{Y}$	Control CTMM IQ ΣX_1	$\bar{X}_1$	Control Age ΣX_2	$\bar{X}_2$
Conform.	57	230	4.04	6799	119.28	10784	189.19
Non-Con.	49	272	5.55	5215	106.43	9422	192.29
Total	106	502	4.74	12014	113.34	20206	190.62

TABLE LXII

SUMS OF SQUARES AND CROSSPRODUCTS

Scores	Symbol	Total for Entire Sample
.01 Level Items	ΣY^2	2,772
CTMM IQ Scores	ΣX_1^2	1,378,196
Age in Months	ΣX_2^2	3,857,050
Crossproducts	$\Sigma X_1 Y$	55,973
	$\Sigma X_2 Y$	95,743
	$\Sigma X_1 X_2$	2,285,302

TABLE LXIII

SUMS OF SQUARES AND CROSSPRODUCTS IN DEVIATION FORM

Source of Variation	Σx^2	Σx_1^2	Σx_2^2	Σx_1y	Σx_2y	Σx_1x_2
Total	394.60	16533.90	5329.00	-923.49	50.43	-4838.30
Within Subgroups	334.05	12181.60	5077.00	-410.13	-73.09	-3791.00

TABLE LXIV

TEST OF SIGNIFICANCE OF THE INFLUENCE OF INTELLIGENCE AND AGE UPON THE RESPONSES TO THE ONE PER CENT LEVEL HPI ITEMS

Source of Variation	Residuals		
	Degrees of Freedom	Sum of Squares	Mean Square
Total	103	330.68	
Within Subgroups	102	309.90	3.04
Difference	1	20.78	20.77

$$F_{1,102} = \frac{20.77}{3.04} = 6.84 \qquad t = \sqrt{F} = 2.61^{**}$$

**Statistically significant at the .05 level. A t-value of 2.67 was required for 53 degrees of freedom.

NOTE: The regression equations used in computing the sums of squares of residuals for total and within subgroups were $y = -.072291_{x1} -.056170_{x2}$ and $y = -.049697_{x1} -.051507_{x2}$ respectively.

APPENDIX P

STATISTICAL DATA RELEVANT TO TESTING THE INFLUENCE OF BOTH AGE AND INTELLIGENCE UPON THE RESPONSES TO THE WEIGHTED HPI ITEMS

TABLE LXV

SUMS AND MEANS OF THE CRITERION AND CONTROL VARIABLES

	Number	Criterion W'td. HPI Items		Control CTMM IQ		Control Age	
	n	ΣY	$\bar{Y}$	ΣX_1	$\bar{X}_1$	ΣX_2	$\bar{X}_2$
Conform.	57	1938	34.00	6799	119.28	10784	189.19
Non-Con.	49	2125	43.37	5215	106.43	9422	192.29
Total	106	4063	38.33	12014	113.34	20206	190.62

TABLE LXVI

SUMS OF SQUARES AND CROSSPRODUCTS

Scores	Symbol	Total for Entire Sample
Weighted HPI Items	ΣY^2	167,259
CTMM IQ Scores	ΣX_1^2	1,378,196
Age in Months	ΣX_2^2	3,857,050
Crossproducts	$\Sigma X_1 Y$	454,167
	$\Sigma X_2 Y$	775,689
	$\Sigma X_1 X_2$	2,285,302

TABLE LXVII

SUMS OF SQUARES OF CROSSPRODUCTS IN DEVIATION FORM

Source of Variation	Σx^2	Σx_1^2	Σx_2^2	Σx_1y	Σx_2y	Σx_1x_2
Total	11523.45	16533.90	5329.00	-6331.88	1189.21	-4838.30
Within Subgroups	9211.39	12181.60	5077.00	-3159.71	425.86	-3791.00

TABLE LXVIII

TEST OF SIGNIFICANCE OF THE INFLUENCE OF INTELLIGENCE AND AGE UPON THE RESPONSES TO THE WEIGHTED HPI ITEMS

Source of Variation	Residuals		
	Degrees of Freedom	Sum of Squares	Mean Square
Total	103	8986.01	
Within Subgroups	102	8312.07	81.49
Difference	1	673.94	673.94

$$F_{1,102} = \frac{673.94}{81.49} = 8.27 \qquad t = \sqrt{F} = 2.88^{**}$$

**Statistically significant at the .01 level. A t-value of 2.67 was required for 53 degrees of freedom.

NOTE: The regression equations used in computing the sums of squares of residuals for total and within subgroups were $y = -.432594_{x1} -.169602_{x2}$ and $y = -.303899_{x1} -.143041_{x2}$ respectively.

5

APPENDIX Q

SPLIT-HALF CORRELATION COEFFICIENTS FOR THE HPI ITEM GROUPS

TABLE LXIX

SPLIT-HALF COEFFICIENTS OF CORRELATION FOR THE HPI ITEM GROUPS BASED ON THE RESPONSES OF SELECTED SUBJECT GROUPS[a]

Item Group	All Subjects (n=106)	All Conform. (n=57)	All Non-Con. (n=49)	1st Choice Conform. (n=32)	2nd Choice Conform. (n=25)	1st Choice Non-Con. (n=28)	2nd Choice Non-Con. (n=21)
.10 Level Items (k=44)	.47	.38	.45	.33	.44	.30	.65
.05 Level Items (k=26)[b]	.44	.49	.22	.40	.59	.13	.24
.01 Level Items (k=10)	.26	.21	.16	.21	.24	.26	-.02

[a] In each case the HPI scores of the first half of the item group were correlated with those of the last half.

[b] The responses to the twenty-seventh item of this group were not considered.

EDUCATIONAL CAREER

Personal Data:

Born March 4, 1934, Carroll, Iowa

Education:

Concordia Junior College, 1952-53.
State University of Iowa, 1953-54.
Buena Vista College, 1955-56, B. A., 1956.
University of South Dakota, summers, 1957, 1958, 1960, M. Ed., 1960.
State University of Iowa, summers, 1959 and 1961.
University of South Dakota, summers, 1962, 1963, 1964, 1965 and 1963-64 and 1964-65. Doctoral program.

Professional Experience:

Ida Grove Public Schools, Ida Grove, Iowa, 1956-59, junior high and high school teacher.
Ida Grove Public Schools, Ida Grove, Iowa, 1959-61, Director of Guidance.
Buena Vista, Cherokee, Ida and Sac Four-County Special Education Unit, Storm Lake, Iowa, 1961-63, School Psychologist.
University of South Dakota, 1963-64 and 1964-65, Assistant Director of Student Guidance and Counseling.
University of South Dakota, summers 1964 and 1965, Instructor in Education.

Member:

American Personnel and Guidance Association
American College Personnel Association
American School Counselors Association
Council of Exceptional Children
National Education Association
Phi Delta Kappa
South Dakota Education Association
South Dakota Personnel and Guidance Association